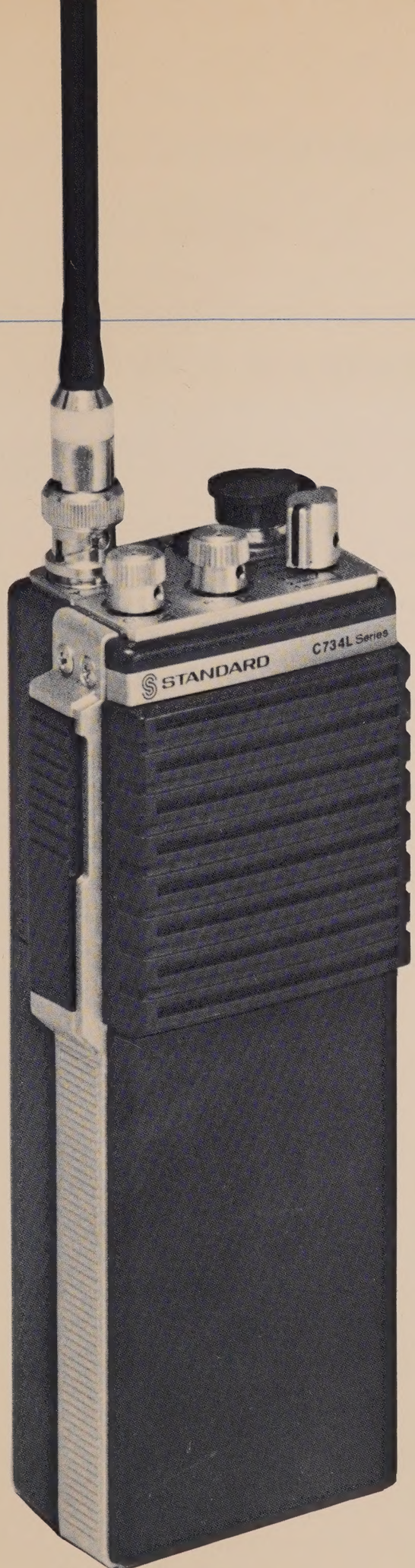
$3.00 per copy

734LC

UHF/FM Handheld Transceiver

Contains:

- ☐ Specifications
- ☐ FCC Information
- ☐ Operation
- ☐ Installation
- ☐ Theory of Operation
- ☐ Performance Tests
- ☐ Alignment Procedure
- ☐ Troubleshooting Charts
- ☐ Complete Drawings
- ☐ Parts Lists



Service Manual

Standard Communications

Standard Communications Corp.

Inserts

734LC UHF/FM HANDHELD TRANSCEIVER SERVICE MANUAL

1. On page 16 in the MAINTENANCE section of the 734LC Service Manual, refer to Figure 3 and change L211 to C235 and L212 to C238.

2. Page 18, #9 should be changed to read: "Key the transmitter and adjust C235, C238, C244, C249 and C251 for maximum RF power meter reading."

3. Page 18, #12 should be changed to read: "Decrease the audio signal generator output for a maximum deviation of ±3 kHz."

4. Page 18, #13 should be changed to read: "Increase the audio signal generator output 20 dB, then adjust R233 for a maximum deviation of ±4.5 kHz."

5. On page 43 under "Capacitors," change the following lines for reference designators to read:

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
C222	36 pF (F4,F5)	Ceramic	DD15360300	D6
C227,C236,C239	4 pF (F4)	Ceramic	DD10040300	E6,E6,E7
C227,C239	4 pF (F5)	Ceramic	DD11060300	E6,E7

6. On page 44, under "Capacitors," change the following lines for reference designators to read:

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
C235	6 pF (F1,F3)	Trimmer Cap.	CT10600140	E6
C236	0.001 uF (F3)	Ceramic	DK46102300	E6
C238	6 pF (F1,F3, F4)	Ceramic	CT10600140	E7
C239	12 pF (F3)	Ceramic	DD45120300	E7
C240,C241,C263	30 pF (F1,F3)	Ceramic	DD45300300	E6
C264	20 pF	Ceramic	DD45200300	F6

7. On page 45, under "Inductors," change the following lines for reference designators to read:

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
L208	-	Doubler Coil	LW55016010	D7
L209	-	Doubler Coil	LW55016090	E7
L211	2 3/4 T	Choke Coil	LK11808010	E6
L212	1 3/4 T	Choke Coil	LK11809010	E7

8. On page 47, under "Semiconductors," change the following lines for reference designators to read:

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
Q404	2SD571	Transistor	HT315682B0	F1

9. On page 47, under "Resistors," change the following lines for reference designators to read:

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
R137	820 ohm, 1/8 W (F1)	Fixed Carbon	GD058211810	E4
R137	470 ohm, 1/8 W (F3,F4,F5)	Fixed Carbon	GD054711810	E4
R226	3.3k ohm, 1/8 W (F1,F4,F5)	Fixed Carbon	GD053321810	D5
R226	8.2k ohm, 1/8 W (F3)	Fixed Carbon	GD058221810	D5

10. On page 44, under "Capacitors," delete the underlined items which correspond to the following reference designators:

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
C244,C251	20 pF (F1)	Trimming	CT12000020	F6,F6

11. On page 45, under "Capacitors," delete the underlined items which correspond to the following reference designators:

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
C299	470 pF	Ceramic	Dk16471300	F7

12. On page 47, under "Resistors," delete the underlined items which

correspond to the following reference designators:

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
R211,R214	150 ohm, 1/4 W	Fixed Carbon	GD05151140	D5,D6
R213	100 ohm, 1/4 W	Fixed Carbon	GD05101140	C5
R216	56 ohm, 1/4 W	Fixed Carbon	GD05560140	D7
R220	270 ohm, 1/4 W	Fixed Carbon	GD05271140	E6
R255	560 ohm, 1/4 W	Fixed Carbon	GD05561140	F6

13. On page 47, under "Resistors," the paragraph which appears immediately before "Miscellaneous Electrical" must be changed to read as 1/4 watt resistors, not 1/8 watt.

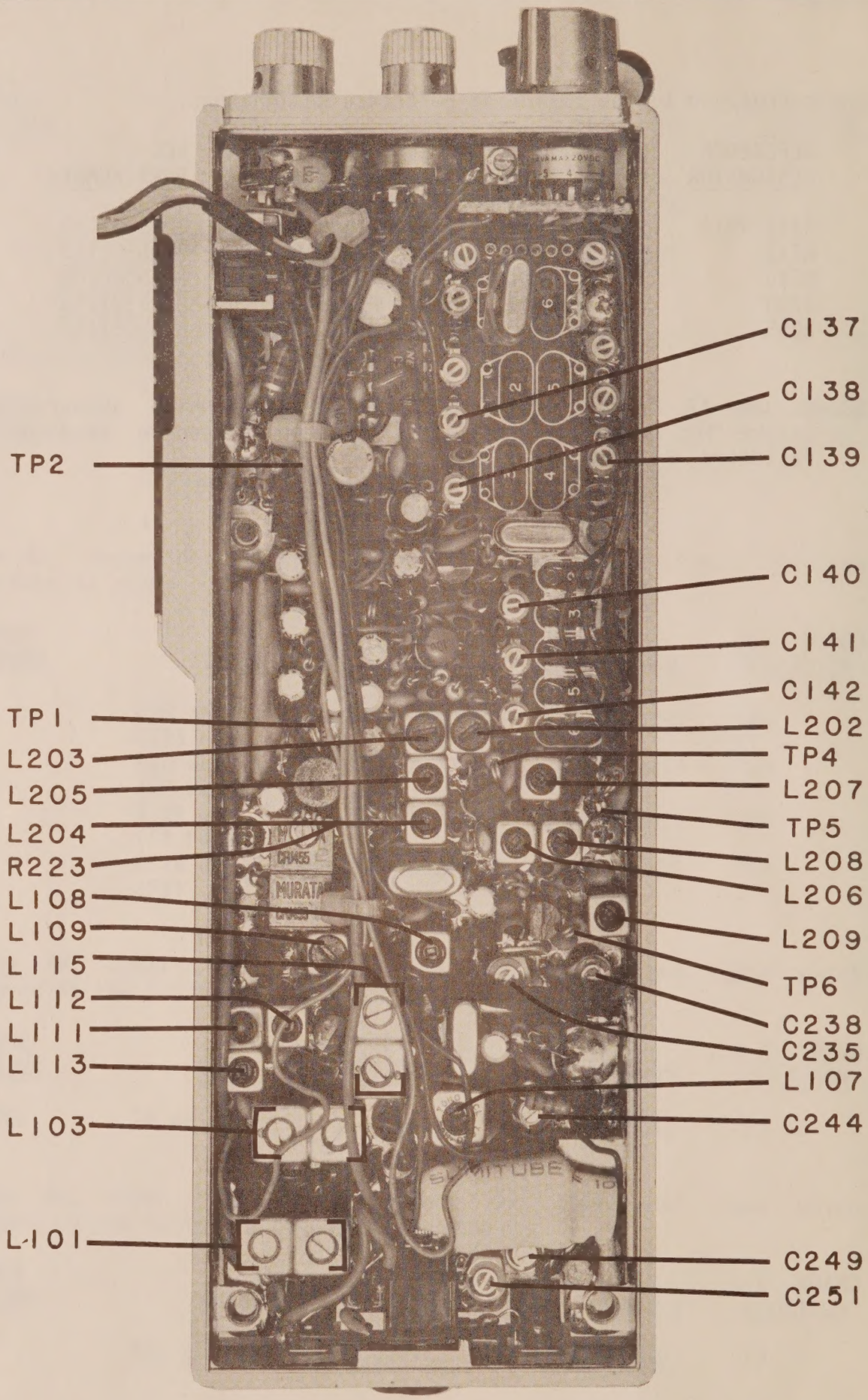


FIGURE 3. 734LC TEST AND ADJUSTMENT POINTS

Standard Communications Corp.

Inserts

734LC UHF/FM HANDHELD TRANSCEIVER

On the Parts List of the 734LC Service Manual, add the following information:

REFERENCE DESIGNATOR	DESCRIPTION	SCC PART NO.
L226	4T, Choke Coil	LC13400010

Standard Communications Corp.

Inserts

734LC UHF/FM Handheld Transceiver
Parts List Change

The following parts list (PARTS LIST C) changes portions of the parts list on pages 41 to 52 of this manual.

1. All parts with reference designators listed in PARTS LIST C will have the new description and SCC Part Number.

   Example:

   a) From PARTS LIST C (new description and SCC Part Number)

REFERENCE DESIGNATOR	DESCRIPTION	SCC PART NUMBER
C229 (F1)	Ceramic,14 pf, RH	DD10040330

   b) From Manual, page 44 (to be deleted)

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER
C229	12 pf (F1)	Ceramic	DD15120330

2. All parts listed in PARTS LIST C and not found in Manual parts list, should be added.

PARTS LIST C

Reference Designator	Description	SCC Part Number
Capacitors		
C212 (F3)	Ceramic, 2 pF	DD15150300
C212 (F4)	Ceramic, 2 pF, CH	DD15150300
C212 (F5)	Ceramic, 68 pF, RH	DD15150300
C222 (F4)	Ceramic, 36 pF, RH	DD15360300
C227 (F1)	Ceramic, 3 pF. CH	DD10030300
C227 (F3)	Ceramic, 3 pF, CH	DD10030300
C227 (F4)	Ceramic, 4 pF, CH	DD10040300
C227 (F5)	Ceramic, 3 pF, CH	DD10030300
C229 (F1)	Ceramic, 14 pF, RH	DD10040330
C229 (F3)	Ceramic, 8 pF, CH	DD11080300
C229 (F4)	Ceramic, 8 pF, RH	DD11080300
C229 (F5)	Ceramic, 4 pF, RH	DD10040330
C230 (F1)	Ceramic, 20 pF, RH	DD11060300
C230 (F3)	Ceramic, 10 pF, CH	DD11100300
C230 (F4)	Ceramic, 11 pF, RH	DD15110300
C230 (F5)	Ceramic, 6 pF, RH	DD11060300
C235 (F1)	Ceramic, 6 pF, RH	CT10600140
C235 (F3)	Ceramic, 6 pF, CH	CT10600140
C235 (F4)	Ceramic, 6 pF, CH	CT10600140
C235 (F5)	Ceramic, 4 pF, CH	CT10400010
C236 (F1)	Ceramic, 0.001 uF, CH	DK46102300
C236 (F3)	Ceramic, 0.001 uF, CH	DK46102300
C236 (F4)	Ceramic, 0.001 uF, CH	DK46102300
C236 (F5)	Ceramic, 0.001 uF	DK46102300
C238 (F1)	Ceramic, 1 pF, CH	CT10600140
C238 (F3)	Trimming, 6 pF, CH	CT10600140
C238 (F4)	Trimming, 6 pF, CH	CT10600140
C238 (F5)	Ceramic, 6 pF	CT10600140
C239 (F1)	Ceramic, 6 pF, CH	DD45120300
C239 (F3)	Ceramic, 12 pF, CH	DD45120300
C239 (F4)	Ceramic, 12 pF, CH	DD45120300
C240 (F1)	Ceramic, 6 pF, CH	DD45300300
C240 (F3)	Ceramic, 30 pF, CH	DD45300300
C240 (F4)	Ceramic, 30 pF, CH	DD45300900
C240 (F5)	Ceramic, 30 pF, CH	DD45300300
C241 (F1)	Ceramic, 30 pF, CH	DD45300300
C241 (F3)	Ceramic, 30 pF, CH	DD45300300
C241 (F4)	Ceramic, 30 pF, CH	DD45300300
C241 (F5)	Ceramic, 30 pF, CH	DD45300300
C249 (F1)	Ceramic, 10 pF	CT11000020

C249 (F3)	Ceramic, 10 pF, CH	CT11000020
C249 (F4)	Ceramic, 10 pF, CH	CT11000020
C249 (F5)	Ceramic, 6 pF, CH	CT10600140
C251 (F5)	Trimming, 6 pF	CT10600140
C264 (F1)	Ceramic, 15 pF	DD45200300
C264 (F3)	Ceramic, 20 pF, CH	DD45200300
C264 (F4)	Ceramic, 20 pF, CH	DD45200300
C264 (F5)	Ceramic, 20 pF, CH	DD45200300

Inductors

L208 (F1)	Coil, Choke 0.82 uH	LW55016010
L208 (F3)	Coil, Choke	LW55016010
L208 (F4)	Coil, Choke, 0.68 uH	LW55016010
L209 (F1)	Coil, Choke 0.82 uH	LW55016090
L209 (F4)	Coil, Choke	LW55016090
L211 (F1)	Coil, Choke, 2-3/4T	LK11808010
L211 (F3)	Coil, Choke, 2-3/4T	LK11808090
L211 (F4)	Coil, Choke, 2-3/4T	LK11808010
L211 (F5)	Coil, Choke	LK11808010
L212 (F1)	Coil, Choke, 1-3/4T	LK11809010
L212 (F3)	Coil, Choke, 1-3/4T	LK11809010
L212 (F4)	Coil, Choke, 1-3/4T	LK11809010
L212 (F5)	Coil, Choke	LK11809010
L215 (F5)	Coil, Choke, 4T	LC13400010
L218 (F5)	Coil, Choke, 3 T	LC12800010
L219 (F5)	Coil, Choke, 3 T	LC12800010
L225 (F5)	Coil, Choke, 1/2T	LK11209010

Resistors

R006 (F3)	330 ohm, 1/8 W	GD05330180
R006 (F4)	330 ohm, 1/8 W	GD05330180
R006 (F5)	330 ohm, 1/8 W	GD05330180
R219 (F1)	6-8 ohm, 1/4 W	GD05068140
R219 (F3)	56 ohm, 1/4 W	GD05008140
R219 (F4)	15 ohm, 1/4 W	GD05068140
R219 (F5)	15 ohm, 1/4 W	GD05150140

Semiconductors

Q404 (F1)	Transistor	HT315682B0
Q404 (F3)	Transistor	HT315682B0
Q404 (F4)	Transistor	HT315682B0
Q404 (F5)	Transistor	Ht315682B0

Resistors

Unless otherwise noted, all chip resistors in this parts list are valued at 1/10 W, +5%. All resistance values are in ohms. Resistors not listed in this parts list are composed of carbon film and valued at 1/4 W, +5%. The resistance values of those resistors not listed are on the schematic diagram.

R219	56, 1/4 W	GD05150140
R219	6 - 8, 1/4 W	GD05068140

Miscellaneous

0318	Contactor, Battery	109C123010
0328	Insulator	144C120020
0338	Screw, P.H.M.	51062604E0
0358	Washer	5926470IG9
068	Rear Mold & Frame	109C010010

Standard Communications

734LB SERVICE INFORMATION INSERT

The attached sheets, together with the 734LC Owner's Operating and Maintenance Manual, comprise the complete service information for the 734LB.

Step 6, page 13, and step I3, page 15, have no application to the 734LB model.

All other references to 734LC in the 734LC manual apply to 734LB except those in the Specifications, page 3; the General Information and FCC Information, page 4; the 734LC TX Troubleshooting Chart, Figure 9, page 25; the 734LC Schematic, Figure 10, page 29; the 734LC P.C. Board, Figure 11, page 31; and the 734LC Parts List, pages 42-49.

The attached sheets contain the correct 734LB version of these figures and text.

9/83 X734LB0701

SPECIFICATIONS

Performance specifications are nominal, unless otherwise indicated, and are subject to change without notice.

GENERAL

Frequency Range	450-470 MHz
Number of Channels	6
Input Voltage	11.25 VDC (±15%)
Current Drain (Standby)	20 mA
(Receive)	0.22 A
(Transmit)	0.58 A
Channel Spacing	25 kHz
Battery Life (10%/10%/80% Duty Cycle)	8 hours min.
Dimensions	6 7/16" H x 2 1/2" W x 1 3/4" D
Weight	1 1/2 lb.
Compliance	FCC Parts 21, 22, 83, 90, 95
FCC Type Acceptance Number	APV9T20581
GSA Contract Number	GS-00C90519

RECEIVER (Measurements made in accordance with EIA Standard RS-316-A)

Sensitivity (12 dB SINAD)	0.35 uV max.
(20 dB Quieting)	0.5 uV max.
Squelch Sensitivity (Threshold)	0.25 uV max.
Modulation Acceptance Bandwidth	±6.5 kHz min.
Selectivity	70 dB
Spurious and Image Rejection	55 dB
Intermodulation Rejection	63 dB
Audio Power Output @ 10% Distortion	0.8 W
Frequency Stability (-30° to +60°C)	±0.001%
Channel Spread	2 MHz

TRANSMITTER (Measurements made in accordance with EIA Standard RS-316-A)

RF Power Output	2 W
Spurious and Harmonic Emissions	50 dB
FM Hum and Noise	50 dB min.
Modulation	16F3
Audio Distortion	5%
Frequency Stability (-30° to +60°C)	±0.0005%
Channel Spread	5 MHz

GENERAL INFORMATION

The Standard Communications Corp. (SCC) Model 734LB is an all solid-state, UHF/FM handheld transceiver designed for use in the frequency range of 450 to 470 MHz. It requires 11.25 VDC input power for operation, supplied internally by a battery pack, and develops an RF power output of 2 watts. Designed for up to six channel operation (crystal-controlled), the unit is brown in color, measures approximately 6 7/16" x 2 1/2" x 1 3/4", and weighs about 1 1/2 pounds.

This manual is intended for use by experienced technicians familiar with similar types of equipment. It contains all service information required for the equipment described and is current as of the printing date. Changes which occur after the printing date are incorporated in Service Information Inserts (SII's).

FCC INFORMATION

The 734LB has been designed to comply with the Federal Communications Commission requirements necessary to operate it in the Business Radio Service and other services within the indicated range. The user must be cognizant of, and comply with, all parts of the FCC Rules and Regulations which apply to the service used. Rules applicable to each may be ordered from:

SUPERINTENDENT OF DOCUMENTS
Government Printing Office
Washington, D.C. 20402

A valid station license and call sign are required before operation of the 734LB is permissible, obtained by submitting a properly and fully completed application to the FCC. The following data for the 734LB may be helpful when filling out the application.

Type Accepted	-	Yes (FCC Parts 21,22,83, 90, and 95)
Output Power	-	2 watts
Emission	-	16F3
Frequency Range	-	450 to 470
FCC Type No.	-	APV9T20581

CONTROLS AND CONNECTIONS

Before operating the transceiver, the user should become familiar with all the controls. Refer to Figure 1 and the following list for a description of each.

1. Antenna Receptacle - Allows for connection of an antenna equipped with a BNC connector.

2. External Speaker Receptacle - Allows for private listening or listening in a noisy environment. Connection of an external speaker deactivates the handheld's internal microphone.)

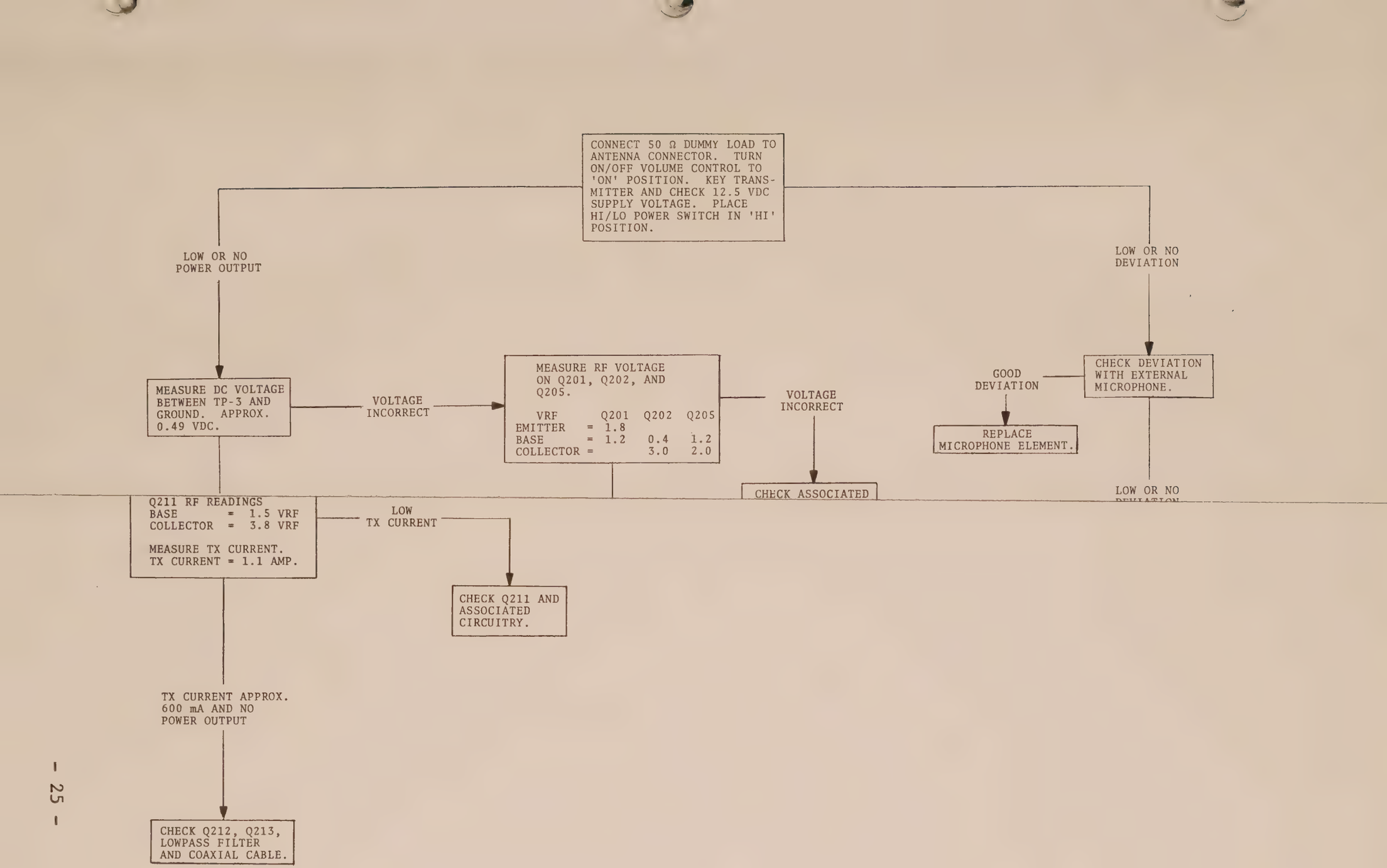


FIGURE 9. 734LB TX TROUBLESHOOTING CHART

GENERAL INFORMATION

The Standard Communications Corp. (SCC) Model 734LB is an all solid-state, UHF/FM handheld transceiver designed for use in the frequency range of 450 to 470 MHz. It requires 11.25 VDC input power for operation, supplied internally by a battery pack, and develops an RF power output of 2 watts. Designed for up to six channel operation (crystal-controlled), the unit is brown in color, measures approximately 6 7/16" x 2 1/2" x 1 3/4", and weighs about 1 1/2 pounds.

This manual is intended for use by experienced technicians familiar with similar types of equipment. It contains all service information required for the equipment described and is current as of the printing date. Changes which occur after the printing date are incorporated in Service Information Inserts (SII's).

FCC INFORMATION

The 734LB has been designed to comply with the Federal Communications Commission requirements necessary to operate it in the Business Radio Service and other services within the indicated range. The user must be cognizant of, and comply with, all parts of the FCC Rules and Regulations which apply to the service used. Rules applicable to each may be ordered from:

SUPERINTENDENT OF DOCUMENTS
Government Printing Office
Washington, D.C. 20402

A valid station license and call sign are required before operation of the 734LB is permissible, obtained by submitting a properly and fully completed application to the FCC. The following data for the 734LB may be helpful when filling out the application.

Type Accepted	-	Yes (FCC Parts 21,22,83, 90, and 95)
Output Power	-	2 watts
Emission	-	16F3
Frequency Range	-	450 to 470
FCC Type No.	-	APV9T20581

CONTROLS AND CONNECTIONS

Before operating the transceiver, the user should become familiar with all the controls. Refer to Figure 1 and the following list for a description of each.

1. Antenna Receptacle - Allows for connection of an antenna equipped with a BNC connector.

2. External Speaker Receptacle - Allows for private listening or listening in a noisy environment. Connection of an external speaker deactivates the handheld's internal microphone.)

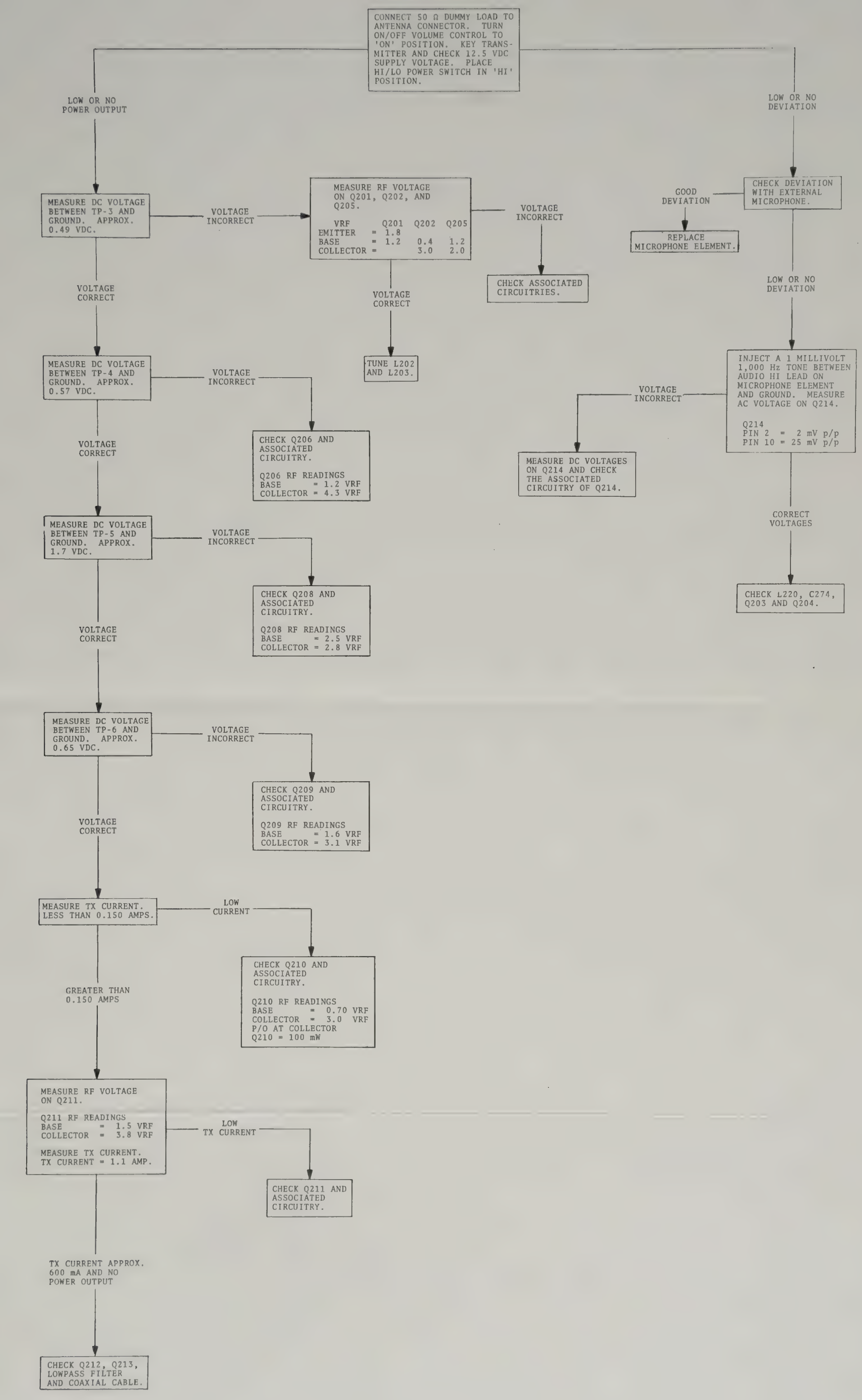


FIGURE 9. 734LB TX TROUBLESHOOTING CHART

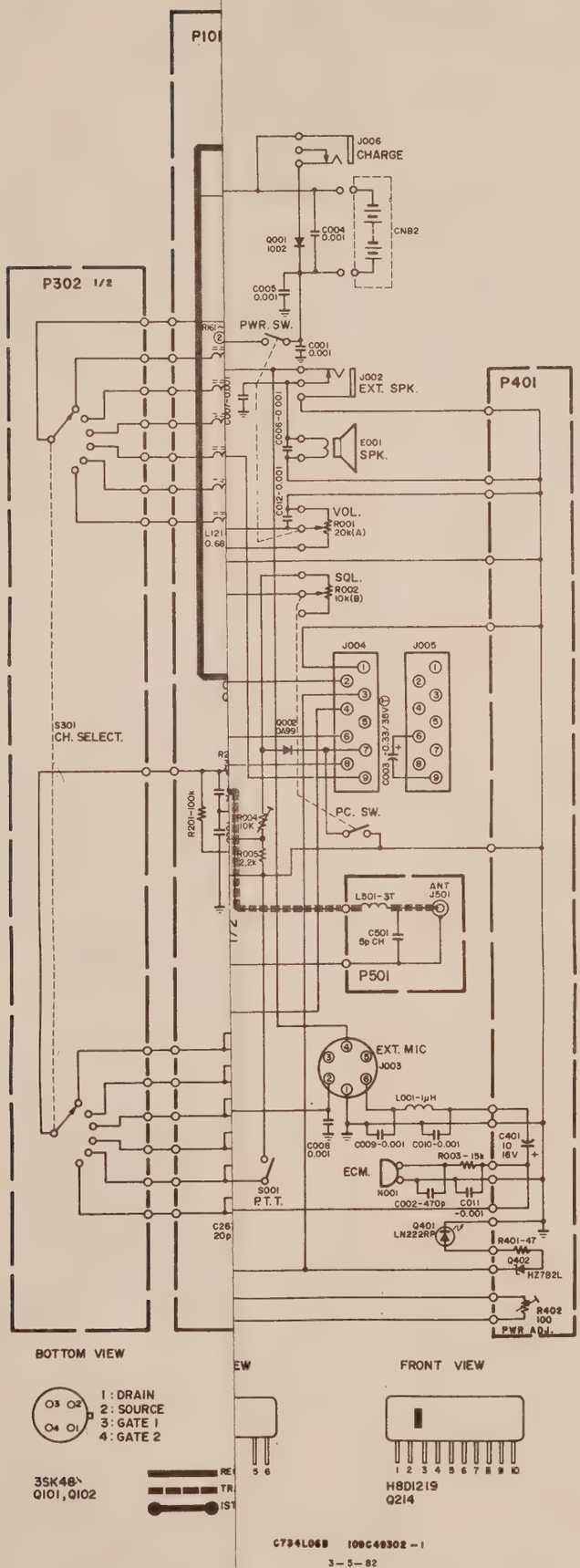


FIGURE 10. 734LB SCHEMATIC DIAGRAM

FIGURE 10. 734LB SCHEMATIC DIAGRAM

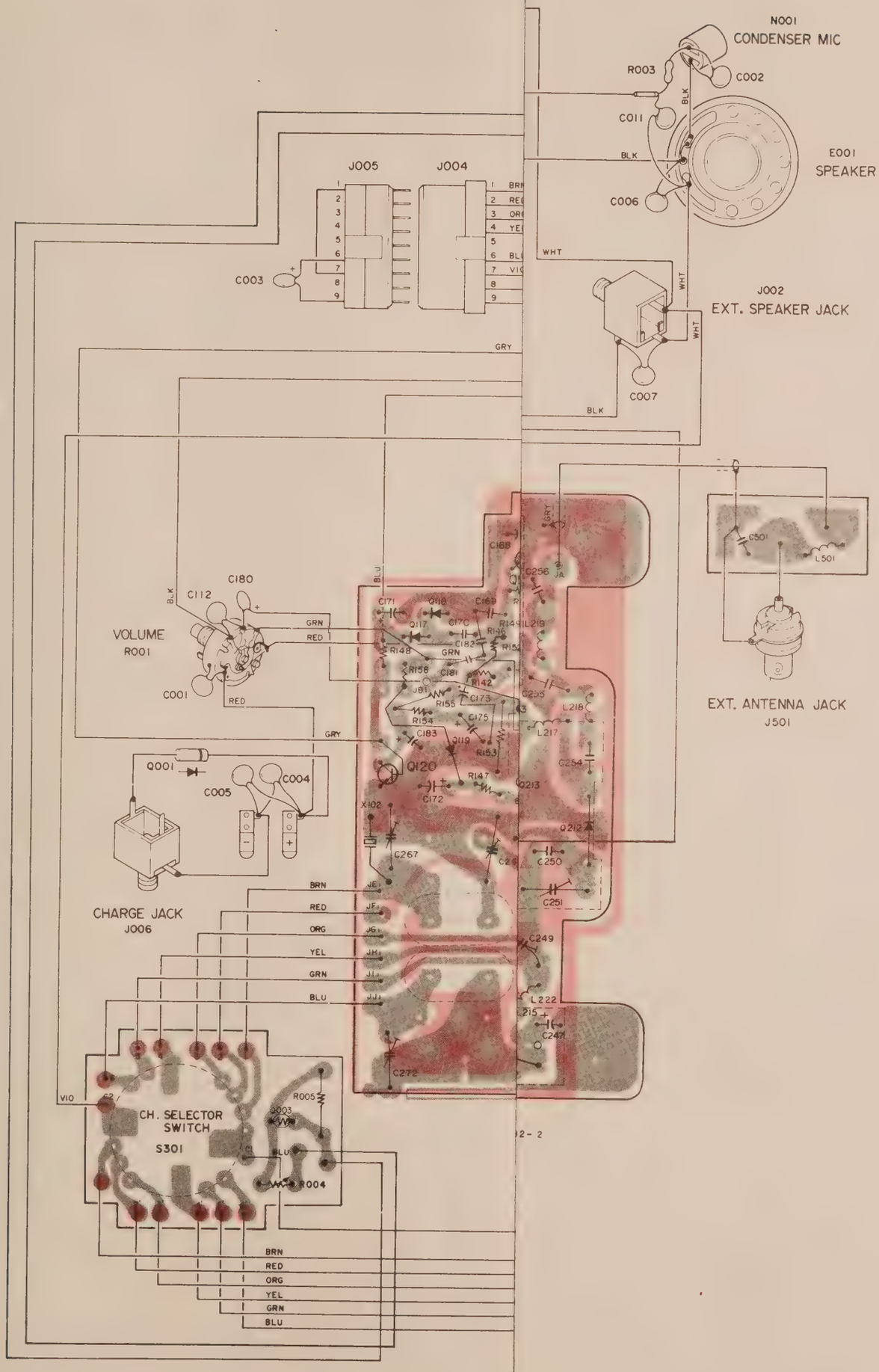


FIGURE 11. 734LB P.C. BOARD LAYOUT

MECHANICAL REVISIONS

REFERENCE DESIGNATOR	DESCRIPTION OF REVISION	EFFECTIVE SERIAL NO.
011F	Deleted Shield with SCC part number 109C109022.	XXU190001
012F	Changed shield from SCC part number 109C120040 to 109C120070.	XXU190001
013F	Changed shield from SCC part number 109C109030 to 109C109060.	XXU190001
014F	Deleted insulator with SCC part number 109C120040.	XXU190001

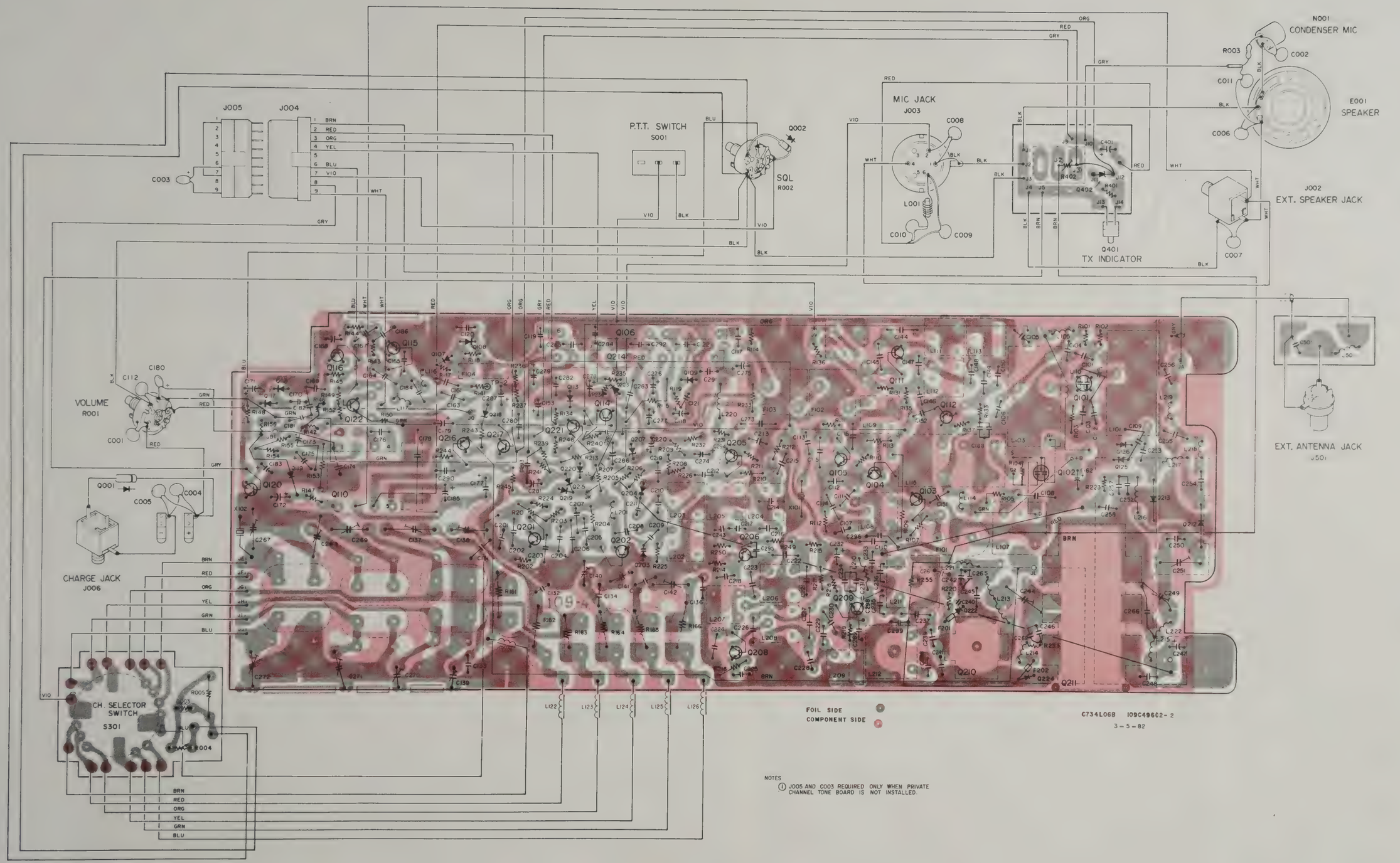


FIGURE 11. 734LB P.C. BOARD LAYOUT

734LB ELECTRICAL

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
Capacitors				
C001	0.001 uF	Ceramic	DK16102300	A5
C002	470 pF	Ceramic	DK16471300	G1
C004,C005,C006, C007,C008,C009, C010,C011,C012	0.001 uF	Ceramic	DK18102300	A5,A5,G1, G2,E1,E2, E2,G1,A4
C003	0.33 uF, 35 V	Electrolytic	EV33403560	A2
C101,C102,C104, C106,C151,C187	39 pF	Ceramic	DD15390360	F4,F4,F4, F4,E5,F4
C103,C109,C176, C184	330 pF	Ceramic	DK16331300	F4,F4,B5, B4
C105,C111,C119, C120,C186	0.001 uF	Ceramic	DK16102300	F4,E5,C4, C4,C4
C107	68 pF	Ceramic	DD45680330	E5
C108	0.022 uF	Semiconductor	DS17223010	F5
C110,C146,C152, C163,C165	0.0047 uF	Semiconductor	DS17472010	E6,E4,E4, C4,B4
C112	10 pF	Ceramic	DD11100300	E5
C113	62 pF	Ceramic	DD15620300	E5
C114,C115	100 pF	Ceramic	DD15101350	E5,E5
C116,C167	0.01 uF	Semiconductor	DS17103010	E5,B4
C117	470 pF	Ceramic	DK16471300	D4
C118,C153,C171	10 uF, 16 V	Electrolytic	EJ10601610	D4,C4,B4
C121	0.01 uF	Ceramic	DA17103010	D4
C122	100 pF	Ceramic	DD45101300	D4
C131,C132,C133, C134,C135,C136	7 pF	Ceramic	DD11070300	C6,C6,C7, C6,D6,D6
C137,C138,C139, C140,C141,C142	20 pF	Trimming	CT12000110	B6,C6,C7, C6,D6,D6
C144	47 pF	Ceramic	DD15470360	E3
C145	100 pF	Ceramic	DD15101360	E4
C147	13 pF	Ceramic	DD15130300	E4
C148	0.5 pF	Ceramic	DD10005370	E4
C149	33 pF	Ceramic	DD15330300	F4
C150	9 pF	Ceramic	DD11090300	F4
C161,C170	0.1 uF	Ceramic	DK26104010	C4,B4
C162,C180	1 uF, 25 V	Electrolytic	EV10502560	F5,A4
C164	0.001 uF	Semiconductor	DS17102010	B4
C168,C173	10 uF, 10 V	Electrolytic	EV10601060	B4,B5
C169	0.0022 uF	Semiconductor	DS17222010	B4
C172	22 uF, 10 V	Electrolytic	EV22601060	B5
C174	0.001 uF	Ceramic	DK46102300	B4
C175,C179	47 uF, 16 V	Electrolytic	EA47601630	B5,C4
C177	100 uF, 10 V	Electrolytic	EA10701030	C5
C178	0.22 uF	Ceramic	DK27224010	B5
C181,C182	0.033 uF	Ceramic	DK26333010	B4, B4
C183	1 uF, 50 V	Electrolytic	EJ10505010	B5

734LB ELECTRICAL

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
C185	33 uF, 10 V	Electrolytic	EV33601060	C5
C188	30 pF	Ceramic	DD45300300	E4
C189	56 pF	Ceramic	DD45560300	E4
C201	51 pF	Ceramic	DD15510300	C6
C202	75 pF	Ceramic	DD15750300	C6
C203,C207,C213, C280,C283	0.01 uF	Semiconductor	DS17103010	C6,C5,D5, C4,D4
C204,C206	24 pF	Ceramic	DD15240360	C6,C6
C205	33 pF	Ceramic	DD15330300	C6
C208,C227,C239	7 pF	Ceramic	DD11070300	D6,E6,E7
C209,C211	0.001 uF	Ceramic	DA17102010	D6,D5
C210,C216	2 pF	Ceramic	DD10020300	D5,D6
C212	15 pF	Ceramic	DD15150300	D5
C214	82 pF	Ceramic	DD45820330	D5
C215,C221,C226	0.0047 uF	Semiconductor	DS17472010	D5,E6,D7
C217,C243	150 pF	Ceramic	DD45151330	D6,D6
C218,C219,C225, C258,C282,C290	0.001 uF	Ceramic	DK16102300	D6,D5,D7, F5,C4,C5
C220,C232,C242, C247,C278,C281, C286	10 uF, 16 V	Electrolytic	EJ10601610	D5,E6,E6, G7,C4,C5, D5
C222,C224,C238	39 pF	Ceramic	DD15390330	D6,D7,E7
C223	1.5 pF	Ceramic	DD10015300	D6
C228,C237	1 pF	Ceramic	DD10010300	E7,E6
C229	12 pF	Ceramic	DD15120330	E7
C230	22 pF	Ceramic	DD15220330	E7
C231,C233,C294, C295	39 pF	Ceramic	DD15390360	E6,E6,D5 D6
C234	0.01 uF	Ceramic	DK78103010	E6
C235	3 pF	Ceramic	DD10030300	E6
C236	10 pF	Ceramic	DD11100300	E6
C240,C241	10 pF	Ceramic	DD41100300	E6,E7
C244,C251	10 pF	Trimming	CT11000020	F6,F6
C245,C289,C293	0.001 uF	Ceramic	DK18102300	E6,E7,C5
C246,C262	15 pF	Ceramic	DD45150300	F7,F7
C248	39 pF	Ceramic	DD15390330	F7
C249	10 pF	Trimming	CT11000020	F6
C250	5 pF	Ceramic	DD10050300	G6
C252,C253	330 pF	Ceramic	DK16331300	F5,F5
C254	51 pF	Ceramic	DD15510370	G5
C255,C256	5 pF	Ceramic	DD10050300	F5,F4
C257	30 pF	Ceramic	DD45300300	F5
C260	470 pF	Ceramic	DK16471300	C5
C261	0.001 uF	Ceramic	DK46102300	E6
C265	470 pF	Ceramic	DK16471300	E6
C266	2 pF	Ceramic	DD40040300	F6

734LB ELECTRICAL

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
C267,C268,C269, C270,C271,C272	20 pF	Trimming	CT12000110	B6,B6,B6, B7,B7,B7
C273	0.15 uF	Ceramic	DK26154010	D4
C274,C276	1 uF, 50 V	Electrolytic	EJ10505010	D5,D4
C275	0.22 uF, 50 V	Electrolytic	EJ22405010	D4
C277,C279	0.47 uF, 50 V	Electrolytic	EJ47405010	D4,C4
C284,C285,C291, C292	470 pF	Ceramic	DD45471370	C4,C4,D4, D4
C287	1 uF, 25 V	Electrolytic	EV10502560	C4
C296,C298	330 pF	Ceramic	DD45331300	E6,E7
C401	10 uF, 16 V	Electrolytic	EJ10601610	F1
C501	5 pF	Ceramic	DD10050300	G4
Inductors				
L001	1 uH	Choke Coil	LC11020020	E2
L101	-	Antenna Coil	LA70260080	F4
L103	-	Antenna Coil	LA70260090	F4
L105,L114	0.3 uH	Choke Coil	LC13010020	F4,E5
L107	-	I.F.T.	L170280030	F6
L108	-	I.F.T.	L155016190	E5
L109	-	I.F.T.	L155016200	E4
L110,L116	1 mH	Choke Coil	LC11050040	F4,C4
L111	-	Doubler Coil	LW55016080	E4
L112	-	Doubler Coil	LW55016010	E4
L113	-	Doubler Coil	LW55016020	E4
L115	-	Antenna Coil	LA70260100	E5
L117	390 uH	Choke Coil	LC13940010	B4
L121,L122,L123, L124,L125,L126	0.68 uH	Choke Coil	LC16810070	C7,C7,C7, D7,D7,D7
L201	10 uH	Choke Coil	LC11030020	D5
L202,L203	-	Antenna Coil	LL55016050	D6,D5
L204,L205	-	Doubler Coil	LW55016030	D5,D5
L206,L207	-	Doubler Coil	LW55016020	D6,D6
L208	-	Doubler Coil	LW55016050	D7
L209	-	Doubler Coil	LW55016020	E7
L210	2 T	Choke Coil	LC12610010	E6
L211	2 3/4 T	Choke Coil	LC15000210	E6
L212	1 3/4 T	Choke Coil	LC13300010	E7
L213	-	Twist Coil	LM13422010	F6
L214	4 T	Choke Coil	LC13400010	F7
L215,L218,L219	3 T	Choke Coil	LC12800010	F7,G5,F4
L216	10 T	Choke Coil	LC11610010	F5
L217	4 T	Choke Coil	LC13400010	F5
L220	27 mH	Choke Coil	LC22760010	E6
L221	0.3 uH	Choke Coil	LC13010022	E6
L222	2 T	Coil	LK24203020	F7
L501	0.028 uH	Choke Coil	LC12800010	G4

734LB ELECTRICAL

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
Semiconductors				
Q001	10DS	Diode	HD20011000	A5
Q002	OA99	Diode	HD10005020	D1
Q003		Thermistor	HH00007030	A8
Q101	3SK48A	F.E.T.	HF400481A0	F4
Q102	2SK48	F.E.T.	HF40048100	F5
Q103	2SC460B	Transistor	HT304601B0	E5
Q104,Q105,Q114, Q115,Q116,Q120, Q122	2SC536	Transistor	HT305360F0	E5,E5,C4, B4,B4,B5, B4
Q106	H8D1152E	I.C.	HC10012230	D4
Q107,Q108,Q109, Q117,Q118	OA99	Diode	HD10005020	C4,C4,D4, B4,B4
Q110	UPC575C2	I.C.	HD10037060	B5
Q111	2SC535C	Transistor	HT305351C0	E4
Q112	2SC2407	Transistor	HT32407100	E4
Q113	WZ071	Zener Diode	HD30023090	C4
Q119,Q125,Q126	1S1555	Diode	HD20011050	B5,F5,F5
Q201,Q202	2SC460B	Transistor	HT304601B0	C6,D6
Q203,Q204	1S2689	Varicap	HD40011090	D6,D5
Q205,Q206	2SC2347	Transistor	HT32347100	D5,D6
Q207	HZ6L	Zener Diode	HD30008010	D5
Q208	2SC2347	Transistor	HT32347100	D7
Q209,Q210	2SC2644	Transistor	HT32644000	E6,E7
Q211	2SC2283	Transistor	HT322831A0	F7
Q212	MI303	Diode	HD20005200	G5
Q213	MI301	Diode	HD20001200	F5
Q214	H8D1219	I.C.	HC10004230	D4
Q215,Q223	OA99	Diode	HD10005020	C5,D4
Q216	2SA608	Transistor	HT106082A0	C5
Q217	2SD571	Transistor	HT40571100	C5
Q218	WZ100	Zener Diode	HD30072090	C4
Q219,Q220,Q222	1S1555	Diode	HD20011050	C5,C5,E6
Q221	2SC536	Transistor	HT305360F0	C5
Q224	1S1555	Diode	HD20011050	F7
Q401	LN222RP	L.E.D.	H110025020	F2
Q402	HZ7B2L	Zener Diode	HD30030010	F2
Resistors				
R001	20K ohm	Variable	RB12030020	A4
R002	10K ohm	Variable	RB11030070	D1
R004	10K ohm	Variable	RA01030520	A8
R161,R162,R163, R164,R165,R166	3.3K ohm, 1/8 W	Chip	RI05332180	C7,C7,C7, C8,C8,C8
R211,R214	150 ohm, 1/4 W	Carbon Film	GD05151140	D5,D6
R213	100 ohm, 1/4 W	Carbon Film	GD05101140	C5

734LB ELECTRICAL

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
R216	100 ohm, 1/4 W	Carbon Film	GD05101140	D7
R402	100 ohm	Trimming	RA01010130	F2
	Resistors not listed and standard, fixed carbon film, ±5%, 1/8 watt. The resistance values, in ohms, are indicated in the schematic diagram.			
Miscellaneous Electrical				
E001	8 ohm	Speaker	QK00508010	G1
F101	21.4 MHz	Crystal	XU721400M5	E6
F102,F103	CFU455E	Ceramic Filter	FG455304E0	E4,D4
F104	CFA455S	Filter	FH455301E0	C4
F201,F202	-	Ferrite Core	FC90050010	E7,F7
J002	-	Jack	YJ01001020	G2
J003	6-pin	Jack	YJ10001600	E1
J004	9-pin	Jack	YJ10000520	B1
J005	9-pin	Plug	YP10001060	B1
J006	-	Jack	YJ01001020	A6
J501	BNC	Jack	YJ01001020	G5
N001	-	Microphone	MS50000100	G1
P301	-	Assembly, Switch	ZZ109C1420	A8
S001	-	Switch	SM01020210	D1
X101	20.945	Crystal	XZ42094502	D5
X102	21.855	Crystal	XZ42185505	B5
Z002	-	Whip Antenna	AZ211Z91Z0	*

734LB MECHANICAL

REFERENCE DESIGNATOR	DESCRIPTION	SCC PART NUMBER
001B	Frame	109C401012
003B	Escutcheon	109C063020
006B	Cover	109C053023
007B	Nut	53228059E0
008B	Nut	53228119E0
009B	Nut	53226019E0
010B	Nut	53227069E0
011B	Lug	62100019E0
012B	Assembly, Knob	109C154410
015B	Assembly, Knob	109C154400
020B	Button	109C270014
021B	Spring	109C115012
023B	Label	3729861043
031B	Terminal	109C123010
032B	Insulator	109C120022
033B	Screw	51062603E0
034B	Screw	50062604B0
035B	Washer	59260505P0
037B	Cover	109C053032
038B	Washer	59046502G9
040B	Stopper	109C114010
041B	Screw	51040205E0
043B	Indicator	109C265042
050B	Assembly, Case	109C064400
055B	Label	109C861012
061B	Screw	51142605C0
062B	Screw	51102608E0
065B	Assembly, Case	109C064410
069B	Screw	51142605C0
001F	Screw	51282606B0
003F	Bolt	52730305S9
006F	Shield	3621109032
007F	Core	3621161012
009F	Lug	62261240W0
012F	Insulator	109C120070
013F	Shield	109C109060
015F	Shield	109C109013
016F	Insulator	109C120012
017F	Label	4733861030
018F	Label	110C861020
020F	Shield	109C109040
021F	Insulator	109C120060
023F	Washer	59260505P0
001V	Buffer	109C056020

CONTENTS

TEXT PAGE

DRAWINGS

SPECIFICATIONS

Performance specifications are nominal, unless otherwise indicated, and are subject to change without notice.

GENERAL

Frequency Range	406 to 420 and 450 to 512 MHz*
Number of Channels	6
Input Voltage	11.25 VDC (±15%)
Current Drain (Standby)	20 mA
(Receive)	0.22 A
(Transmit)	1.45 A (High), 0.7 A (Low)
Channel Spacing	25 kHz
Dimensions	6 1/2" H x 2 1/2" W x 1 3/4" D
Weight	1 1/2 lbs.
Compliance	FCC Parts 21, 22, 90, 95
FCC Type Acceptance Number	APV9T20681
GSA Contract Number	GS-00C90519

RECEIVER (Measurements made in accordance with EIA Standard RS-316-A)

Sensitivity (12 dB SINAD)	0.35 uV max.
(20 dB Ouieting)	0.5 uV max.
Squelch Sensitivity (Threshold)	0.25 uV max.
Modulation Acceptance Bandwidth	±6.5 kHz min.
Selectivity	70 dB
Spurious and Image Rejection	55 dB
Intermodulation Rejection	63 dB
Audio Power Output at 10% Distortion	0.8 W
Frequency Stability (-30° to +60°C)	±0.001%
Channel Spread	2 MHz

TRANSMITTER (Measurements made in accordance with EIA Standard RS-316-A)

RF Power Output	5 W (High), 1 W max. (Low)
Spurious and Harmonic Emissions	50 dB
FM Hum and Noise	50 dB min.
Modulation	16F3
Audio Distortion	5%
Frequency Stability (-30° to +60°C)	±0.0005%
Channel Spread	5 MHz

* F1 = 406 to 420 MHz
  F3 = 450 to 470 MHz
  F4 = 470 to 490 MHz
  F5 = 490 to 512 MHz

GENERAL INFORMATION

The Standard Communications Corp. (SCC) Model 734LC is an all solid-state, UHF/FM handheld transceiver designed for use in the frequency ranges of 406 to 420 and 450 to 512 MHz. It requires 11.25 VDC input power for operation supplied internally by a battery pack, and develops a switchable RF power output of 5 or 1 watt. Designed for up to six channel operation (crystal-controlled), the unit is brown in color, measures approximately 6 7/16" x 2 1/2" x 1 3/4, and weighs about 1 1/2 pounds.

This manual is intended for use by experienced technicians familiar with similar types of equipment. It contains all service information required for the equipment described and is current as of the printing date. Changes which occur after the printing date are incorporated in Service Information Inserts (SII's).

FCC INFORMATION

The 734LC has been designed to comply with the Federal Communications Commission requirements necessary to operate it in the Business Radio Service and other services within the indicated range. The user must be cognizant of, and comply with, all parts of the FCC Rules and Regulations which apply to the service used. Rules applicable to each service may be ordered from:

SUPERINTENDENT OF DOCUMENTS
Government Printing Office
Washington D.C. 20402

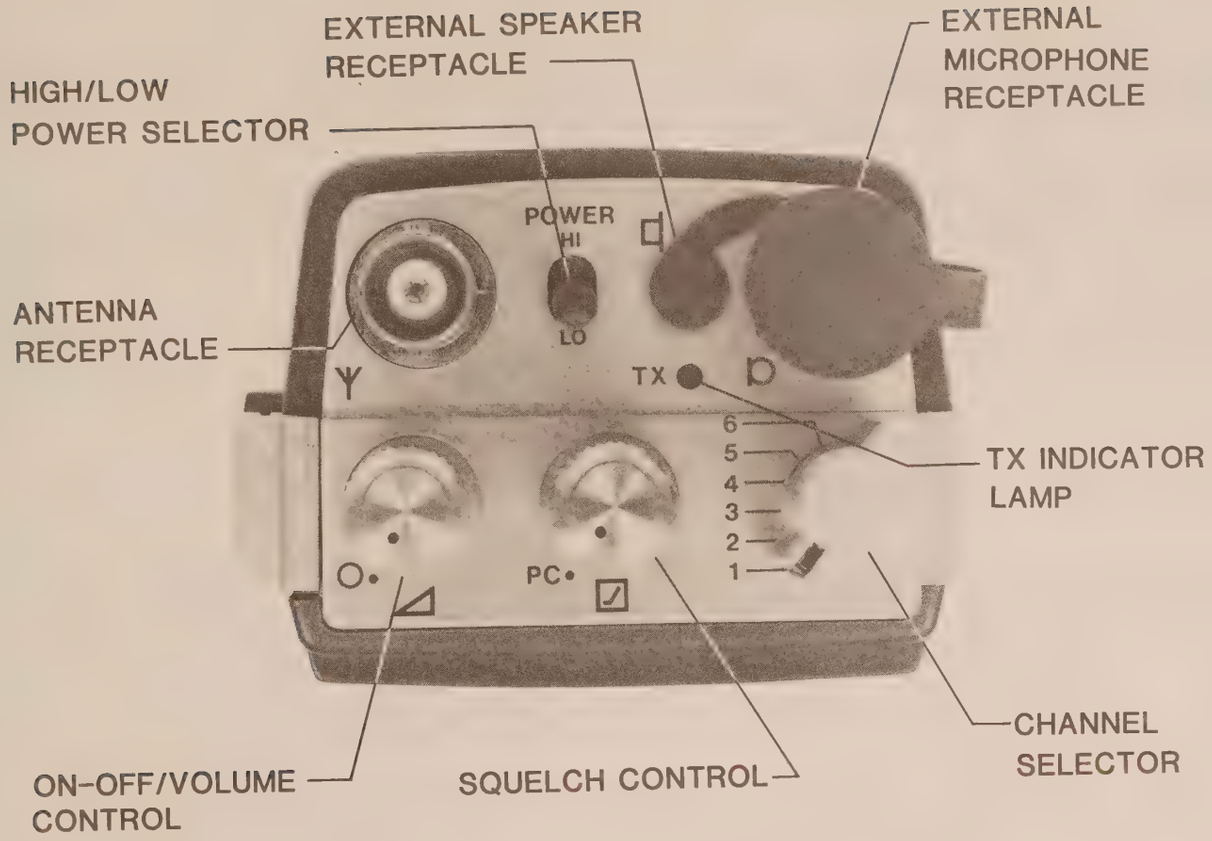
A valid station license and call sign are required before operation of the 734LC is permissible, obtained by submitting a properly and fully completed application to the FCC. It is the user's responsibility to apply for and obtain a radio license from the FCC. The following data for the 734LC may be helpful when filling out the application.

Type Accepted - Yes (FCC Parts 21, 22, 90, and 95)
Output Power - 5 or 1 watts
Emission - 16F3
Frequency Range - 450 to 512 MHz
FCC Type No. - APV9T20681

CONTROLS AND CONNECTIONS

Before operating the transceiver, the user should become familiar with all the controls. Refer to Figure 1 and the following list for a description of each.

1. Antenna Receptacle - Allows for connections of an antenna equipped with a BNC connector.



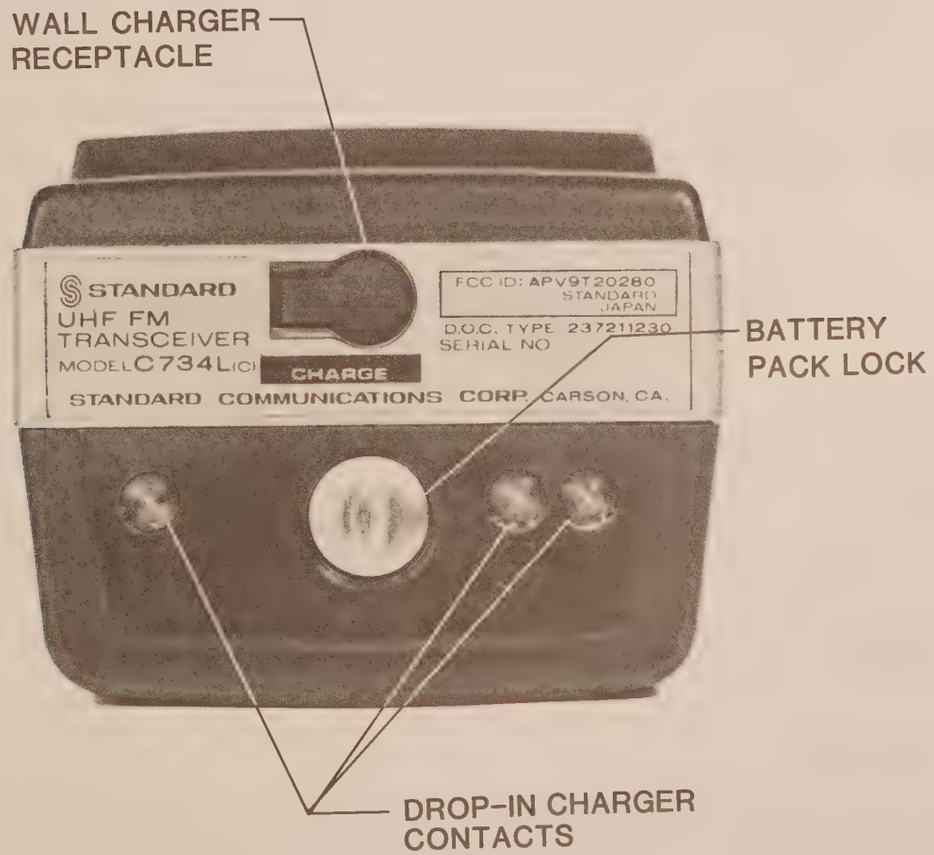


FIGURE 1. CONTROLS AND CONNECTIONS

2. High/Low Power Selector - Selects the desired transmitter power output (5 watts in the "HI" position, 1 watt in the "LO" position).

3. External Speaker Receptacle - Allows for private listening or listening in a noisy environment. (Connection of an external speaker deactivates the internal speaker of the handheld.)

4. External Microphone Receptacle - Allows for connection of an external microphone equipped with a 6-pin connector. (Connection of an external microphone deactivates the handheld's internal microphone.)

5. On/Off Volume Control - Applies power to the transceiver and adjusts audio output level.

6. Squelch Control - Reduces or eliminates all objectionable background noise, or enables the mute function of the private channel tone board (in the "PC" position).

7. Channel Selector - Selects the desired operating channel.

8. TX Indicator Lamp - Illuminates when the radio is in the transmit mode.

9. Wall Charger Receptacle - Allows for connections of a wall charger.

10. Battery Pack Lock - Secures the battery pack to the transceiver or allows it to be removed. (The BP11 battery pack consists of the batteries and the rear cover of the handheld.)

11. Drop-In Charger Contacts - Allow for connection of a drop-in or gang charger (SCC Model CSA4 Series or CSA5 Series).

HANDHELD POWER SOURCE

GENERAL

The 734LC is equipped with the BP11 battery pack, which is the recommended power source for the handheld. The BP11 consists of nine individual nickel-cadmium batteries, encased in the rear cover of the handheld. It supplies the 11.25 VDC required for proper handheld operation. To remove the BP11 from the handheld, turn the lock screw on the bottom of the radio to the "OPEN" position. To replace it, simply reverse the procedure, turning it to the "LOCK" position.

BATTERY CHARGER

The operational characteristics of nickel-cadmium batteries under load are different than those of conventional alkaline or lead-acid batteries. A NI-Cad battery will maintain its voltage output level until near complete discharge, then the voltage will drop abruptly. For this reason, it is difficult to determine or estimate its state of charge.

The CSA4 Series (CSA4 - 120 VAC, 50/60 Hz input; CSA4SA - 230 VAC, 50/60 Hz input) will rapid charge the BP11 in approximately one (1) hour. To operate, plug it into the specified power source, then insert the handheld with battery pack or a battery pack alone, into the charger. The contacts of the charger must connect to those of the battery pack. The red light on the charger will illuminate, indicating the battery pack is being rapid charged (at a 500 mA rate). After approximately one hour the green light will illuminate, indicating that the battery pack is fully charged and the charger has reverted to the trickle rate (6 to 11 mA), which will sustain a full charge in the battery pack.

**** CAUTION ****

The temperature range of the CSA4 series is 10° to 40°C (50 F to 104°F). Do not operate the charger outside this temperature range. When charging overnight, take precautions that the temperature at the charging location does not exceed these limits. Additionally, we recommend that you do not operate the radio while it is in the charger.

OPERATION

Operation of the transceiver is as follows.

1. Turn the on/off volume control clockwise to mid-position on the dial.

2. Set the channel selector to the desired position.

3. Set the high/low power selector to the desired position.

4. If a private channel tone board is installed, rotate the squelch control fully counterclockwise to the "PC" position.

5. If a private channel tone board is not installed, adjust the squelch control clockwise until the background noise just disappears.

6. When a message is received, adjust the volume control to the desired listening level.

7. Before transmitting, monitor the channel to insure it is not busy (in accordance with FCC regulations). To accomplish this, if a tone board is installed, turn the squelch control clockwise to turn the "PC" function off.

8. To transmit, depress the push-to-talk switch located on the side of the unit, and hold it in while giving the message. (If an external microphone is used, its push-to-talk switch will activate the transmitter.)

9. When the message has been given, release the push-to-talk switch so incoming calls can be received.

NOTE: The transceiver cannot receive a call while transmitting. Therefore, wait until an incoming message is completed before transmitting.

OPTIONAL INSTALLATIONS

Optional installations for the 734LC include a tunable CTCSS private channel tone board (SCC Model TN15M) and an external speaker microphone (SCC Model MP635G). Drawings of both options are included in the Drawings section of this manual. In addition, tone programming, tone frequency deviation adjustment, and decoder check of the tunable tone board are included in the Maintenance section.

For mechanical installation of the tone board, refer to the transceiver exploded parts view (Figure 12, page 35). Electrical installations consists of simply connecting the p-pin receptacle of the tone board to the mating receptacle of the radio. (J005, a dummy plug, must first be removed from the radio receptacle.)

Installation of the speaker microphone consists of connecting the 6-pin connector of the microphone to the external microphone receptacle of the radio. This disables the internal microphone of the handheld; to transmit, you must depress the push-to-talk switch of the external microphone and speak into it. However, the handheld's internal speaker will continue to function in addition to the speaker of the MP635G.

THEORY OF OPERATION

Refer to the functional block diagram (Figure 2) and the schematic diagram (Figure 10) for the following description.

RECEIVER

The receiver is a double conversion superheterodyne designed for narrow band FM reception in the UHF/FM frequency ranges of 406 to 420 and 450 to 512 MHz. A crystal-controlled first local oscillator provides for selection for up to six operating channels.

1. RF Stage

   The RF signal from the antenna is applied to gate 1 of Q101, through the antenna switching circuit and RF coils. Q101, a dual gate MOSFET, shows a power gain of about 10 dB. Precise selectivity is obtained by the use of cavity type coils on the input and output side of Q101. Q125 and Q126 protect Q101 against excessive input.

2. First Local Oscillator Stage

   Q111 is a third overtone oscillator. Its collector circuit is tuned to three times the third overtone, therefore the signal to Q112 is three

FIGURE 2. 734LC FUNCTIONAL BLOCK DIAGRAM

6A 109C49401

9-5-80

NOTE: The transceiver cannot receive a call while transmitting. Therefore, wait until an incoming message is completed before transmitting.

OPTIONAL INSTALLATIONS

Optional installations for the 734LC include a tunable CTCSS private channel tone board (SCC Model TN15M) and an external speaker microphone (SCC Model MP635G). Drawings of both options are included in the Drawings section of this manual. In addition, tone programming, tone frequency deviation adjustment, and decoder check of the tunable tone board are included in the Maintenance section.

For mechanical installation of the tone board, refer to the transceiver exploded parts view (Figure 12, page 35). Electrical installations consists of simply connecting the p-pin receptacle of the tone board to the mating receptacle of the radio. (J005, a dummy plug, must first be removed from the radio receptacle.)

Installation of the speaker microphone consists of connecting the 6-pin connector of the microphone to the external microphone receptacle of the radio. This disables the internal microphone of the handheld; to transmit, you must depress the push-to-talk switch of the external microphone and speak into it. However, the handheld's internal speaker will continue to function in addition to the speaker of the MP635G.

THEORY OF OPERATION

Refer to the functional block diagram (Figure 2) and the schematic diagram (Figure 10) for the following description.

RECEIVER

The receiver is a double conversion superheterodyne designed for narrow band FM reception in the UHF/FM frequency ranges of 406 to 420 and 450 to 512 MHz. A crystal-controlled first local oscillator provides for selection for up to six operating channels.

1. RF Stage

   The RF signal from the antenna is applied to gate 1 of Q101, through the antenna switching circuit and RF coils. Q101, a dual gate MOSFET, shows a power gain of about 10 dB. Precise selectivity is obtained by the use of cavity type coils on the input and output side of Q101. Q125 and Q126 protect Q101 against excessive input.

2. First Local Oscillator Stage

   Q111 is a third overtone oscillator. Its collector circuit is tuned to three times the third overtone, therefore the signal to Q112 is three

C734L06A 109C49401

9-5-80

FIGURE 2. 734LC FUNCTIONAL BLOCK DIAGRAM

times the crystal frequency. The signal is tripled again by Q112 and L115, then fed to gate 2 of the first mixer (Q102).

3. First Mixer Stage

After the initial amplification and filtering, the received signal is applied to gate 1 of the first mixer (Q102), where it is heterodyned with the signal from the first oscillator, resulting in a 21.4 MHz signal at the output of Q102.

Coil L107 and crystal filter F101 filter out and minimize the effect of components included in the output of Q102 which cause intermodulation or cross-modulation.

The frequency formula is as follows.

$$\text{Crystal Frequency} = \frac{\text{Receive Frequency} - 21.4}{9} \text{ MHz}$$

4. First And Second IF Stage

The 21.4 MHz intermediate frequency (first IF) produced by the heterodyning action of the first mixer is amplified by Q103, then fed through L108 to the second mixer (Q104).

The amplified first IF signal is mixed at Q104 with a 20.945 MHz second oscillator signal from Q105, producing a 455 kHz second IF. This signal is filtered through L109, F102, and F103, then fed to the second IF amplifier (Q106).

5. Second IF Amp And Discriminator Stage

The FM signal is fed into the input terminal pin (1) of Q106, where it is amplified and limited. Q106 possesses a voltage gain of more than 110 dB, so that the limiter may act even when the signal is very weak. From Q106 the signal passes through C119 to Q107, Q108, and ceramic discriminator F104, where it is demodulated into an audio signal.

6. Squelch Circuit

A noise rectifying squelch circuit is employed to eliminate noise when an RF signal is absent or very weak. The noise generated in the demodulation circuit is suppressed inversely to signal strength.

The 455 kHz signal component and the 75 kHz noise component pass through L116, L117, C184, and C165 to be removed of their low frequency audio components. The noise is then amplified by Q115 and Q116 and rectified by voltage doubler diodes Q117 and Q118 to operate the squelch switching transistor (Q120).

When the RF signal is present the noise component is decreased, the output voltage of Q117 and Q118 is lowered, and Q120 is turned off. Squelch volume is further fed between the base and ground of Q120 to adjust the Q117 and Q118 DC voltage.

7. AF Pre-Amplifier/Power Amplifier Stage

AF output from the demodulation circuit is fed to the speaker after being de-emphasized by R141 and C161 and amplified by Q112. Q110 is the AF power amplifier. When the squelch is on, the voltage of Q110's input terminal pin (1) becomes zero, and AF output ceases.

TRANSMITTER

The transmitter is designed for operation capable of 5 watts power output in the UHF/FM frequency ranges of 406 to 420 and 420 to 512 MHz.

1. Microphone Amplifier Stage

The audio signal which originates at the electrostatic type microphone is pre-emphasized by C280 and R237, then fed to the input of Q124. Instantaneous Deviation Control (IDC) is also provided by Q124 and associated components, which limit the voice level automatically at a fixed level when it shows more than a certain value. When the voice level is below the limiter level, pre-emphasis is unchanged.

The roll-off filter consisting of C275, L220, and C273 attenuates at the high frequency above 3 kHz by 18 dB/octave, which prevents the expansion of the occupied frequency bandwidth. Maximum frequency bias is adjusted by semi-fixed resistor R233.

2. Oscillator Stage

The oscillator circuit is a revised Colpitts type consisting of C201, Q202, and Q201. The voltage regulator for the oscillator is a 6 volt zener diode (Q207), which is fed through decoupling to prevent frequency fluctuation of the power source voltage.

The frequency reference formula is as follows.

$$\text{Crystal Frequency} = \frac{\text{Transmit Frequency}}{36} \text{ MHz}$$

3. Modulator Stage

The modulator is a variable reactance modulator which varies the frequency of the oscillator circuit according to the modulation signals. Since the phase changes when the high frequency signal passes through the resonance circuit, phase modulation is obtained by making the input signal frequency constant and changing the resonant frequency of the resonance circuit (L202, Q203, L203, and Q204) according to the modulation signal. A clear modulation without much distortion is obtained in this manner, especially when the microphone input is low.

4. Multiplier Stages

The signal from the modulator is tripled by Q205, L204, and L205, doubled by Q206, L206, and L207, doubled again by Q208, L208, and L209, then tripled again by Q109, L211, and L212 to obtain the final UHF

output frequency. This multiplied signal is then fed to the power amplifier stage.

5. Power Amplifier Stage

The signal is fed to the base of Q210, amplified, passed through the coupled circuit of L213, C244, and C246, then fed to the final transistor (Q211). The power amplifier output is kept constant at 50 ohms by C215, C249, and C251. The harmonic component is removed by a low pass filter, consisting of L218, L219, L501, C255, C256, and C501.

6. RF Power Switching

RF power is controlled by changing the collector voltage of the final transistor. When S401 is in the high power position, the full battery voltage is applied. When S401 is in the low power position, between 4.0 and 5.0 volts is applied to the final transistor collector through R251 and R252.

SWITCHING CIRCUITS

1. Antenna Circuit

During transmission B+ voltage is applied to the switching circuit supplying power of R223, L216, Q212, L217, and Q213. This turns on Q212 and Q213, and the RF signal is supplied to the antenna through the low pass filter. At that time, Q213 is grounded, and the transmission output does not go into the receiver section, partly due to the RF checking effect of L217. During reception, Q212, and Q213 remain in the off condition since B+ voltage is not applied to the switching circuit, and the signal from the antenna goes to the receiver RF amplifier through the low pass filter consisting of L217 and C253.

2. Power Supply Circuit

Transmission and reception switching of the power source is performed by Q216, Q219, Q220, and Q221. When the push-to-talk switch is off, Q221 is on, Q216 is off, and receiver B+ voltage is obtained. When the push-to-talk switch is on (depressed), these states are reversed.

MAINTENANCE

GENERAL

The inherent quality of the solid-state components used in the transceiver will provide many years of continuous use without failure, assuming the unit is treated with care. The following precautions should always be observed to prevent damage to the radio.

1. Never key the transmitter unless an antenna or suitable dummy load is connected to the antenna receptacle of the radio.

2. Avoid excessive supply voltage. The voltages should not exceed 13 VDC.

3. During alignment steps, avoid transmitting for periods longer than ten seconds, until transmitter alignment is completed. Longer periods of transmission during alignment can cause heat build-up and possible damage to transistors in the radio.

Maintenance on the transceiver should be performed in the following sequence.

1. Performance Test - Conducted to check the overall performance of the transceiver. Should be performed prior to the sale/installation of the radio and prior to any corrective maintenace.

2. Alignment/Adjustment - Conducted if the transceiver fails in the Performance test and/or a critical electrical component has been replaced in the transceiver. In addition, SCC recommends that the radio be retuned whenever maintenance is performed on it.

3. Troubleshooting - Isolates a fault in the transceiver.

Remove the covers from the radio to obtain access to the test and adjustment points. Connect the radio to the specified DC source (11.25 VDC) using clips on the radio at the battery terminals. Do not connect the power source to the "Charge" receptacle. Test equipment hookup for alignment is illustrated in Figures 4, 5, 6, and 7. Location of test and adjustment points is illustrated in Figure 3.

SPECIAL NOTE

The collector and base of Q211 (2SC2283) is reversed from normal American transistors. Please note the pin details of this transistor (on the schematic diagram of the transceiver) before servicing it.

TEST EQUIPMENT

The following maintenance procedure is supplied assuming the repair technician has access to the following test equipment, or its equivalent.

EQUIPMENT	MODEL
FM Communications Monitor	Cushman CE-4B
RF Wattmeter w/50 Ohm Load	Bird 6154
Tone Generator	Cushman CE-11
Voltmeter	Hewlett Packard 427A
RF Probe	Hewlett Packard 11096B
Frequency Counter	Hewlett Packard 5314A
Oscilloscope	Hewlett Packard 1120A
Power Supply	Ratelco 2046B

Zero Center Meter	25 uA-0-25 uA
Sinadder	Helper Instruments

Optional (Recommended but not required)

RF Spectrum Analyzer	Hewlett PAckard 8558B w/Display
Digital Voltmeter	Danameter 2000
Signal Generator	Wavetek 3000

PERFORMANCE TEST

I. Transmitter

1. Connect a wattmeter with a 50 ohm load to the antenna receptacle.
2. Key the transmitter by depressing the microphone PTT switch.
3. Verify that the power output is 5 watts in the high power mode, and 1 watt, ±0.5 watts, in the low power mode.
4. Set an FM communications monitor to measure the exact transmitter frequency of the unit.
5. Key the transmitter and verify that the FM monitor indicates the exact transmitter frequency ±500 Hz.
6. Set the FM communications monitor to measure transmitter deviation.
7. Key the transmitter and speak into the microphone. Deviation must not exceed ±5.0 kHz.
8. Repeat steps 4 through 7 for each channel.

II. Receiver

1. Connect an FM signal generator to the antenna receptacle.
2. Connect an AC voltmeter to the speaker jack with an 8 ohm, 2 watt resistor in parallel.
3. Turn the squelch control counterclockwise for maximum noise.
4. Adjust the volume control for a voltmeter reading of 2.0 VAC.
5. With the signal generator set at the receive frequency (no modulation), slowly increase the signal level until the voltmeter reading is reduced to 0.2 VAC (20 dB decrease). Verify that the signal generator output does not exceed 0.5 uV.
6. Reduce the signal generator output to zero.
7. Adjust the squelch control to the point where the speaker noise just cuts out (threshold).

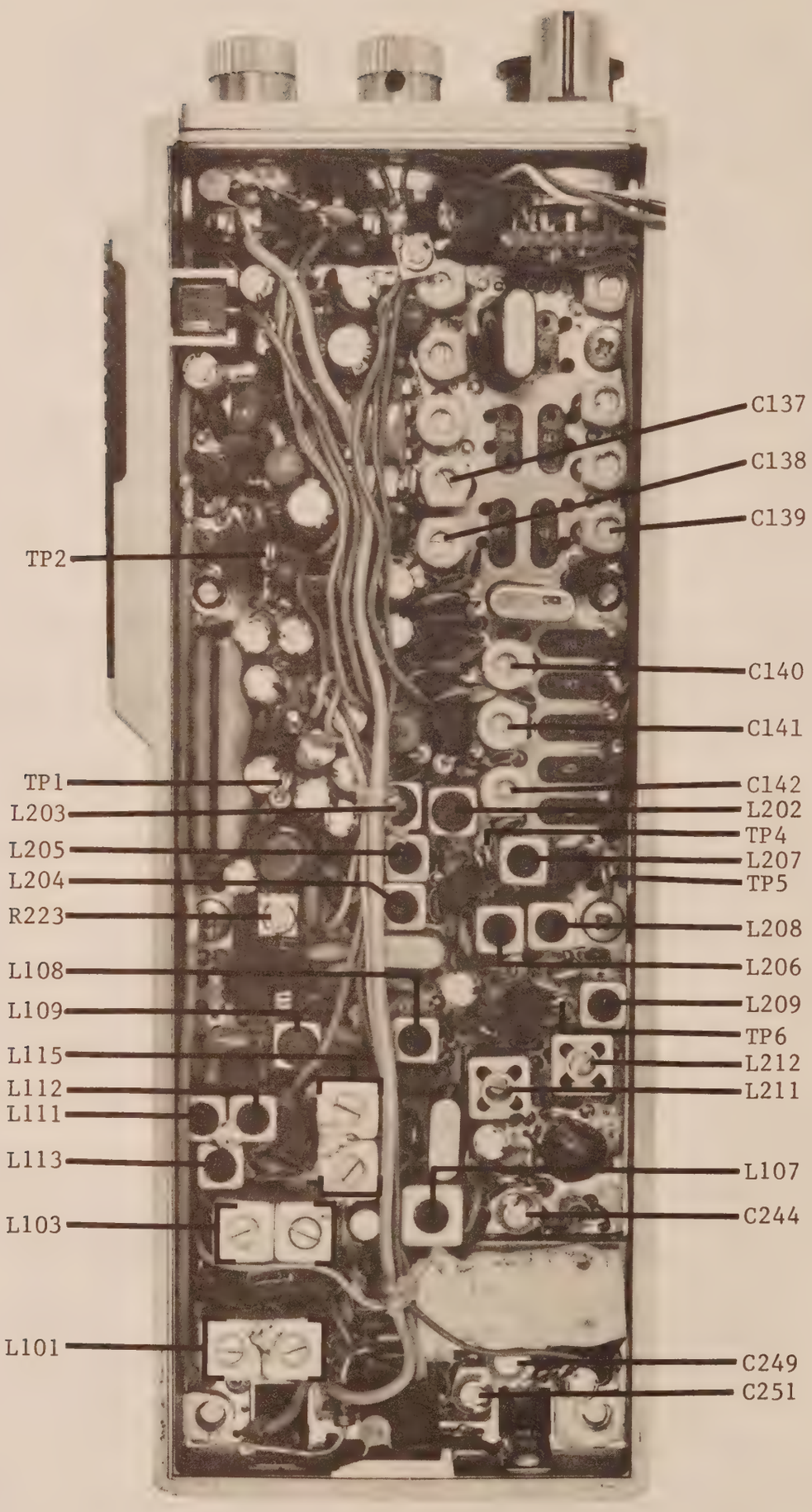


FIGURE 3. 734LC TEST AND ADJUSTMENT POINTS

8. Set the signal generator modulation to ±3 kHz with a 1 kHz tone.

9. Increase the signal generator output until speaker noise returns.

10. Turn the squelch control fully clockwise (maximum quieting).

11. Increase the signal generator output until the audio is recovered at the speaker again. Verify that the signal level of the signal generator is below 5.0 uV.

ALIGNMENT/ADJUSTMENT

I. Transmitter

1. Connect test equipment as shown in Figure 4.

NOTE: Because power measurements of low power UHF radios are extremely critical, we suggest that when connecting the wattmeter to the radio you use a high quality coaxial cable (RG-142 B/U or RG-8, 3 feet maximum), an "N" type connector at the wattmeter, and BNC connector at the antenna receptacle of the radio.

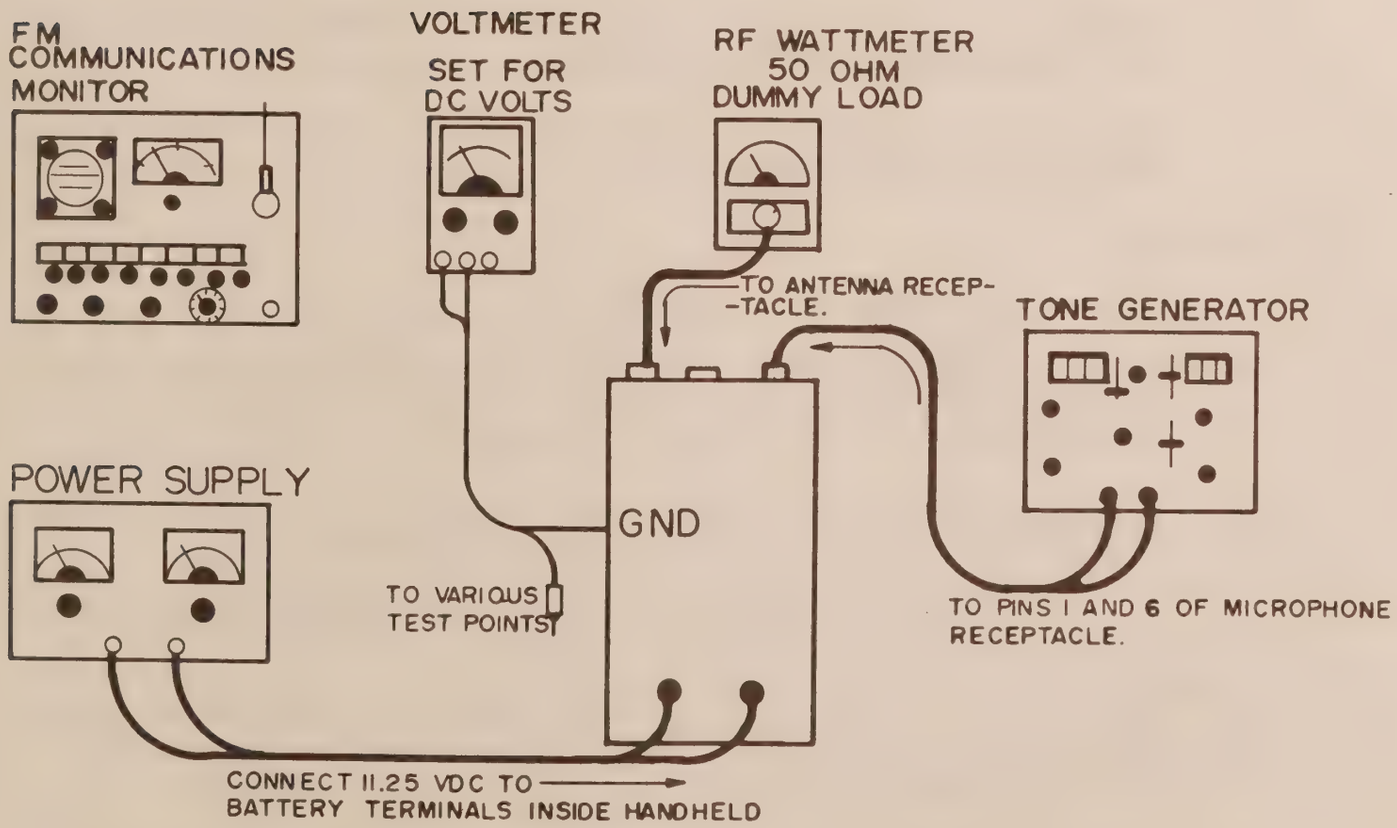


FIGURE 4. 734LC TX TEST SET-UP

2. Connect the voltmeter, set for DC volts, to TP4.

3. Key the transmitter and adjust L202, L203, L204, and L205 for maximum voltmeter reading.

4. Connect the voltmeter, set for DC volts, to TP5.

5. Key the transmitter and adjust L206 and L207 for maximum voltmeter reading.

6. Connect the voltmeter, set for DC volts, to TP6.

7. Key the transmitter and adjust L208 and L209 for maximum voltmeter reading.

8. Repeat steps 2 through 7 several times.

9. Key the transmitter and adjust L211, L212, C244, C249, and C251 for maximum voltmeter reading.

10. Inject a sine wave signal of 750 mV, 1 kHz to pins 1 and 6 of the external microphone receptacle.

11. Key the transmitter and adjust R233 for maximum deviation of ±4.5 kHz.

12. Adjust the input signal to 75 mV, key the transmitter, and adjust R233 for maximum deviation of ±3 kHz.

13. Adjust the input signal to 750 mV again, then repeat steps 10 through 12 several times.

II. Receiver

1. Connect test equipment as shown in Figure 5.

2. Set the signal generator function of the communications monitor to the receiver frequency of the channel chosen in the radio with a non-modulated carrier of about -20 dBm.

3. Adjust the on/off volume control of the radio to the mid-position, so background noise is heard through the speaker.

4. Adjust the crystal trimming capacitor corresponding to the channel chosen for maximum audible noise level.

5. Adjust the slugs of L113 and L115 so their top ends are aligned with the tops of the coil bobbins, then adjust the slug of L113 one and one-half turns clockwise into the coil bobbin.

6. Connect the voltmeter, set for DC volts, to TP1. Adjust L101, L103, L115, L107, L108, and L109 for maximum voltmeter reading.

CAUTION: Never adjust L111.

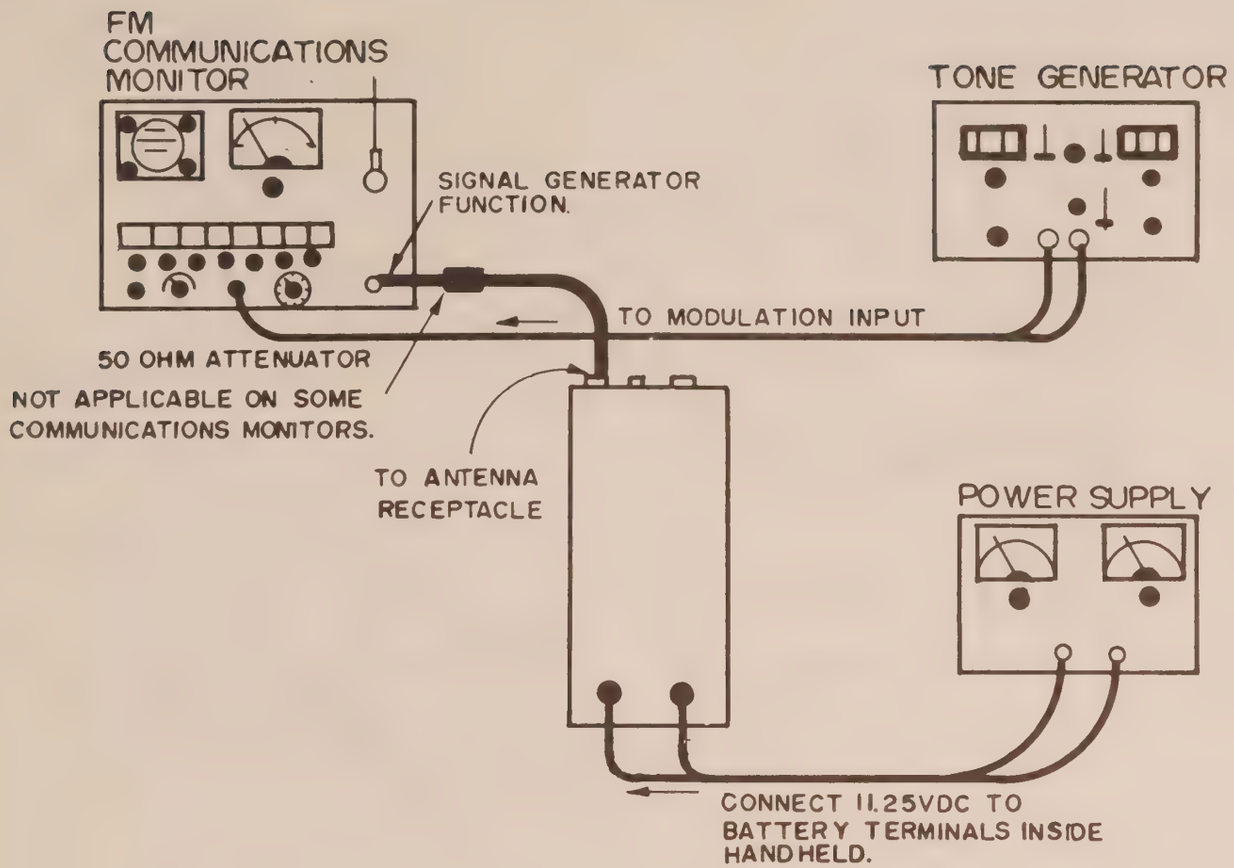


FIGURE 5. 734LC RX TEST SET-UP

7. Set the signal generator output level to about -105 dBm.

8. Connect a zero center meter to TP2.

9. Adjust the crystal trimming capacitor so that the center meter reads the same level with and without the signal generator output connected to the antenna receptacle of the radio.

10. Disconnect the center meter from TP2.

11. Reconnect the signal generator output to the antenna receptacle. Modulate the signal generator output with a 1 kHz tone, ±3 kHz deviation, at the maximum level necessary to maintain 10 dB quieting. Repeat several times.

12. Adjust L112 and L113 for maximum voltmeter reading (at TP1).

13. Repeat steps 7 through 10 for additional channels, adjusting the corresponding trimming capacitor for each channel.

III. TN15M Tunable Tone Board

A. Tone Frequency Deviation Adjustment

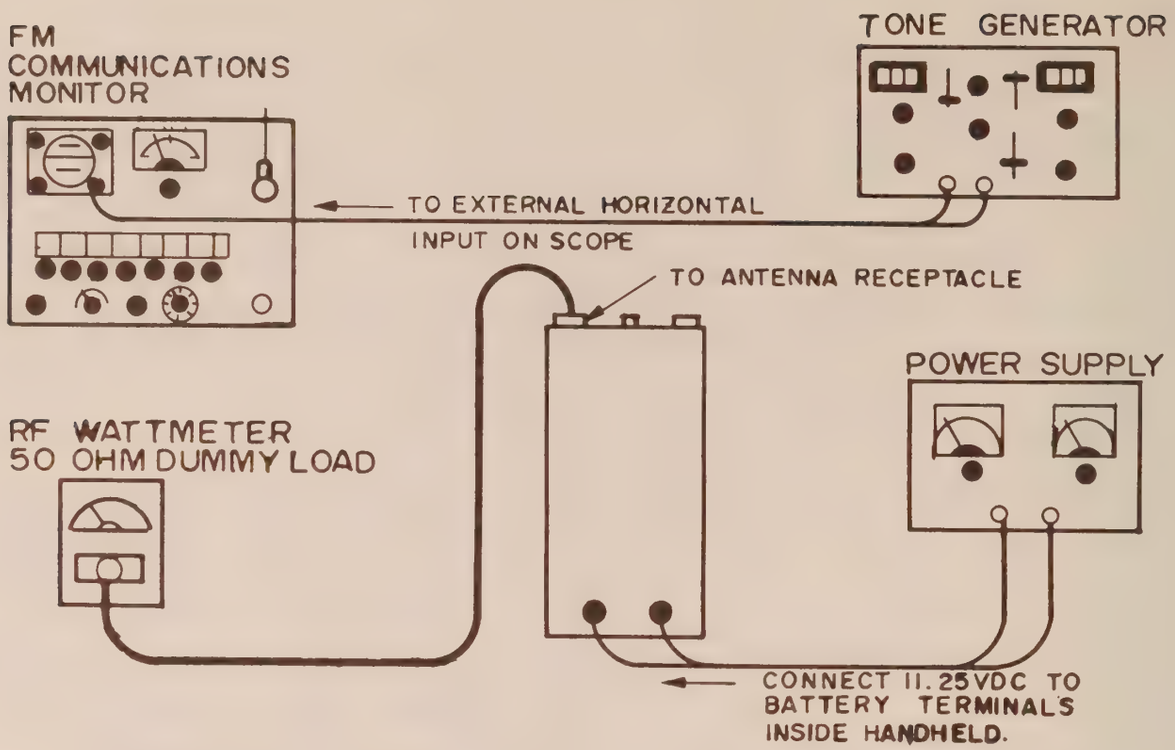


FIGURE 6. 734LC TONE BOARD TX SET-UP

1. Connect test equipment as shown in Figure 6.

2. Turn R110 fully clockwise.

3 Cut jumpers A and B according to the tone frequency desired.

   a. 67.0 to 114.4 Hz; cut A and B
   b. 118.8 to 173.8 Hz; cut A
   c. 179.9 to 250.3 Hz; do not cut

4. Set the tone generator to the desired tone frequency, and the communications monitor to the transmit frequency of the radio.

5. Key the transmitter and adjust R124 until the Lissajous figure in the communications monitor is stationary.

6. Key the transmitter and adjust R110 counterclockwise to obtain a 600 Hz deviation reading on the communications monitor.

B. Decoder Check

1. Connect test equipment as shown in Figure 7.

2. Set the squelch control for maximum noise (fully counterclockwise but <u>not</u> to the "PC" position).

3. Adjust R004 fully counterclockwise.

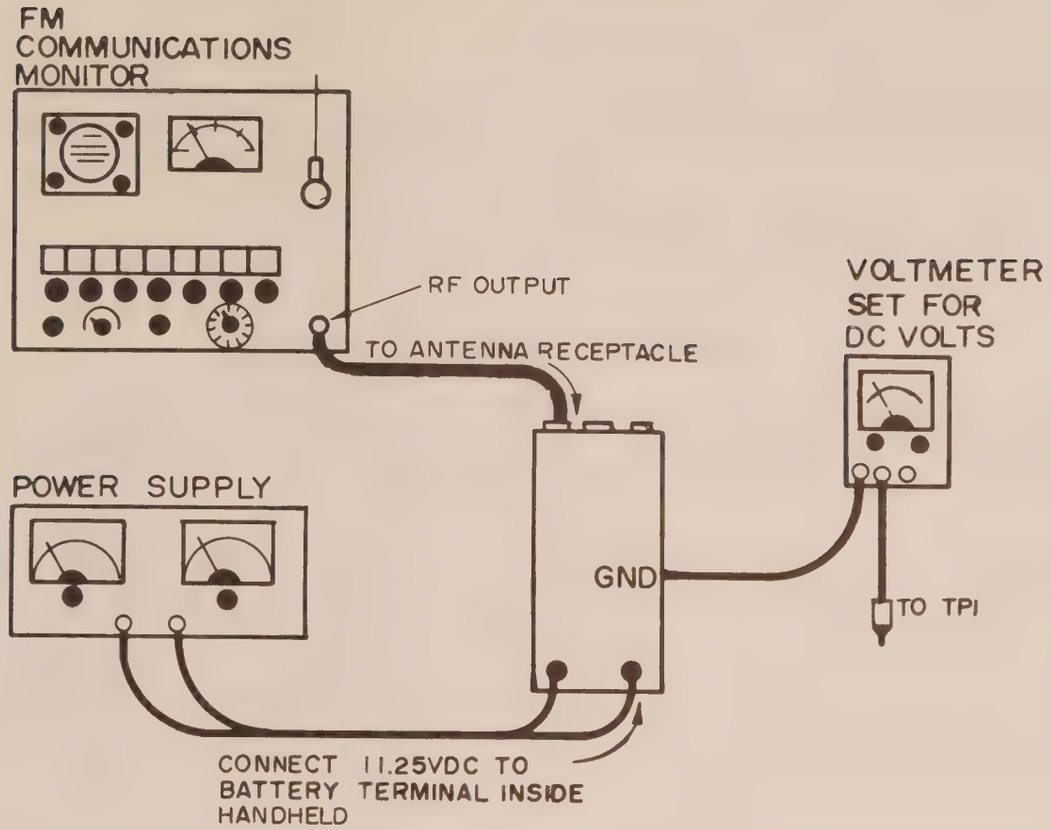


FIGURE 7. 734LC TONE BOARD RX TEST SET-UP

4. Set the tone generator to the desired tone frequency, and the signal generator function of the communications monitor to the receive frequency of the radio.

5. Adjust the signal generator output level to obtain 15 dB quieting.

6. Set the squelch control to the "PC" position.

7. Set the deviation of the tone generator to 250 Hz.

8. Adjust R122 fully clockwise, then counterclockwise until noise is just heard at the speaker.

9. Set the squelch control for maximum noise.

10. Adjust the signal generator output level to obtain 10 dB quieting.

11. Set the deviation of the tone generator to 600 Hz.

12. Set the squelch control to the "PC" position.

13. Adjust R004 clockwise until noise at the speaker just disappears.

TROUBLESHOOTING

By following the sequence of steps shown on the troubleshooting charts (Figures 8 and 9), a defective stage or component may be isolated.

NOTE: The troubleshooting charts are for use after the transceiver has been aligned to the desired frequency.

CRYSTAL INFORMATION

Transmit crystals used in the 734LC utilize external compensation circuits to insure a frequency stability of ±5 ppm over the specified temperature range. They require a special method of installation.

The compensator leads are not soldered to the TX crystal leads. To install the crystal with compensator, insert the crystal leads into the appropriate crystal socket, then insert the compensator leads (with tubing covering them) into the two pre-drilled holes next to the crystal socket. On the bottom side of the board, soler the compensator leads to the crystal leads. (Soldering the compensator to the crystal on the top side of the board will increase the effective height of the crystal and prevent the radio cover from fitting properly.)

When ordering crystals from the SCC Frequency Management Department, specify the radio model the crystals are for, and the desired operating frequency of each channel for the radio.

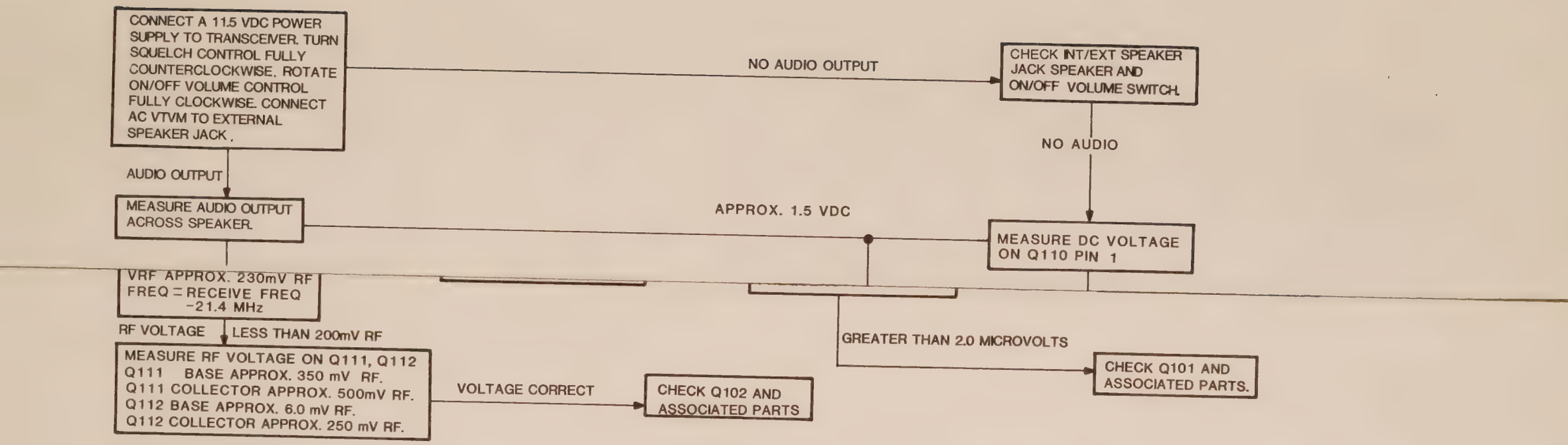


FIGURE 8. 734LC RX TROUBLESHOOTING CHART

TROUBLESHOOTING

By following the sequence of steps shown on the troubleshooting charts (Figures 8 and 9), a defective stage or component may be isolated.

NOTE: The troubleshooting charts are for use after the transceiver has been aligned to the desired frequency.

CRYSTAL INFORMATION

Transmit crystals used in the 734LC utilize external compensation circuits to insure a frequency stability of ±5 ppm over the specified temperature range. They require a special method of installation.

The compensator leads are not soldered to the TX crystal leads. To install the crystal with compensator, insert the crystal leads into the appropriate crystal socket, then insert the compensator leads (with tubing covering them) into the two pre-drilled holes next to the crystal socket. On the bottom side of the board, soler the compensator leads to the crystal leads. (Soldering the compensator to the crystal on the top side of the board will increase the effective height of the crystal and prevent the radio cover from fitting properly.)

When ordering crystals from the SCC Frequency Management Department, specify the radio model the crystals are for, and the desired operating frequency of each channel for the radio.

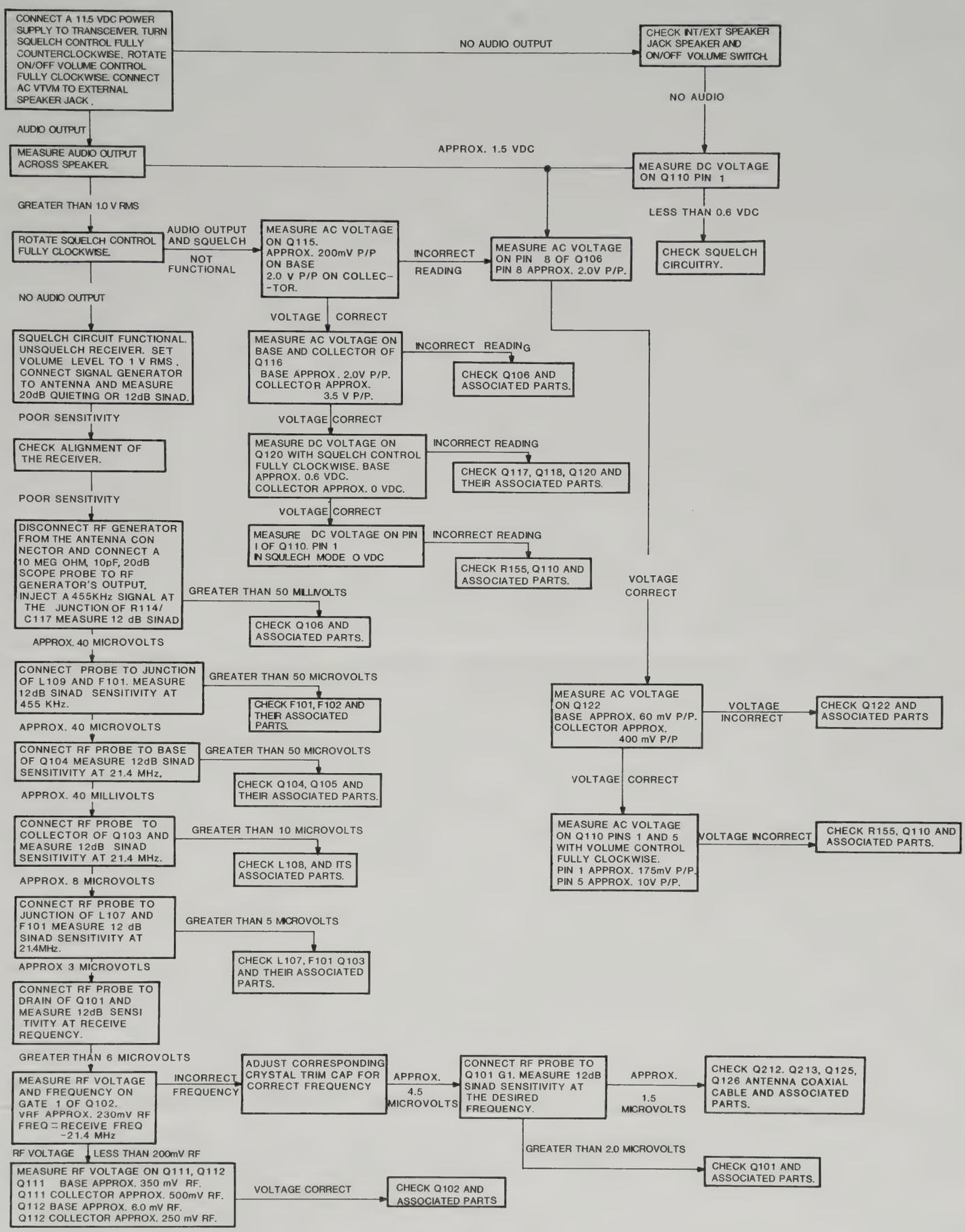


FIGURE 8. 734LC RX TROUBLESHOOTING CHART

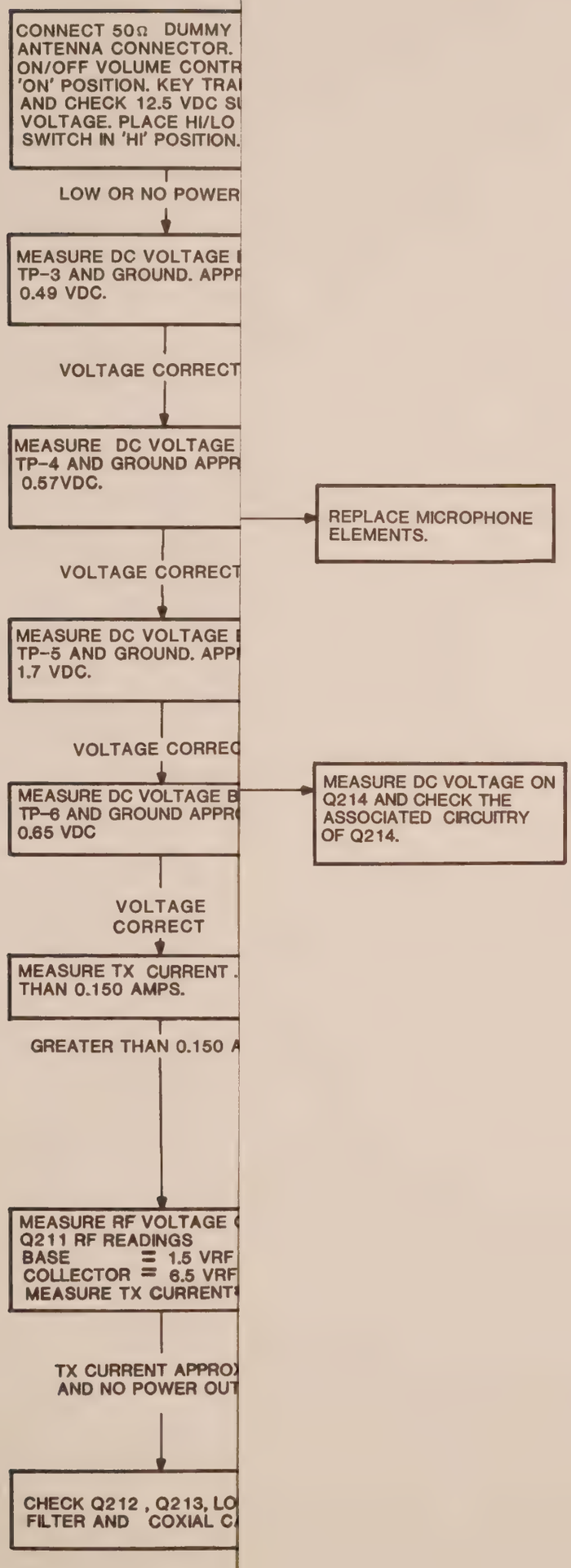


FIGURE 9. 734LC TX TROUBLESHOOTING CHART

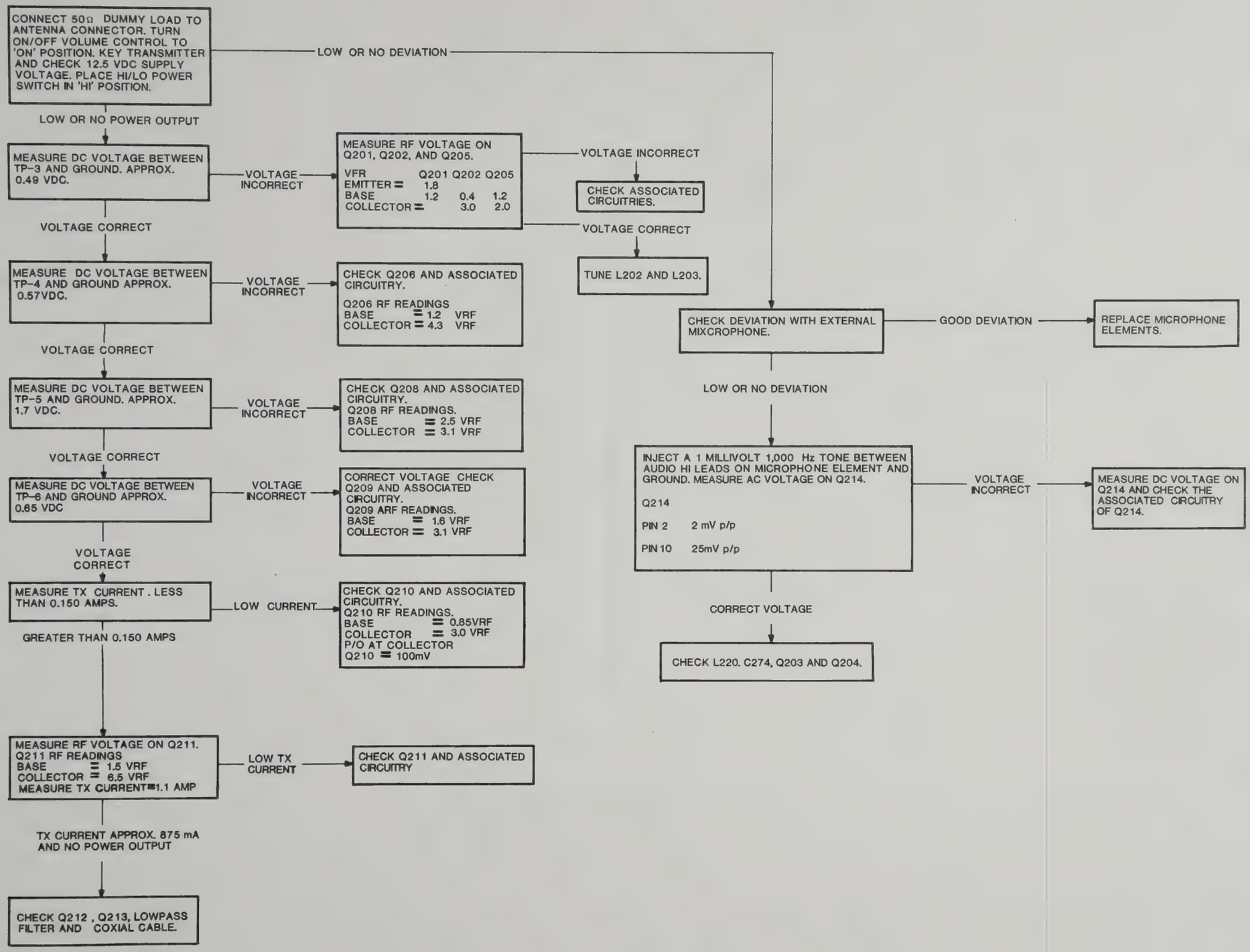


FIGURE 9. 734LC TX TROUBLESHOOTING CHART

DRAWINGS

GENERAL

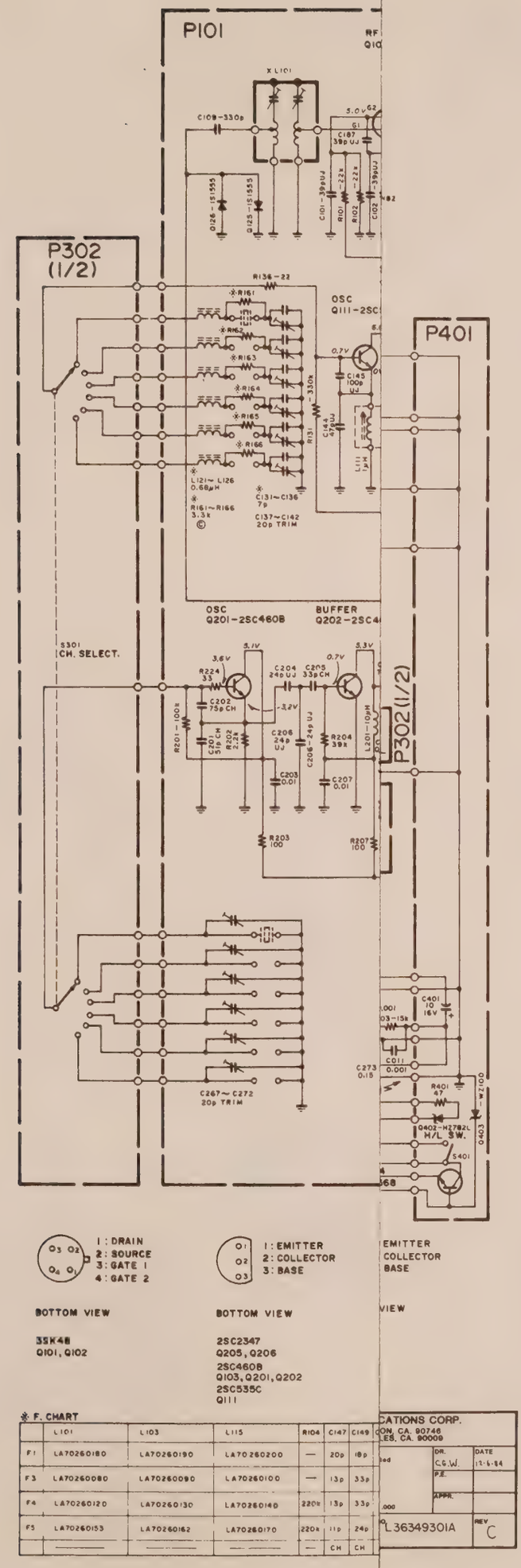
The following drawings illustrate the electrical and mechanical details of the transceiver. Also included are electrical drawings of the drop-in charger (CSA4 Series), tunable tone board (TN15M), and speaker/microphone (MP635G) which are compatible with the 734LC. Mechanical drawings of the charger and microphone are also included. The corresponding parts lists for each drawing are detailed in the Parts List section.

REVISIONS

As drawings are updated, information about revisions is incorporated into a revision column. This revision column appears in the manual on the back side of the revised drawing. It lists the reference designator of the part involved, a description of the revision, and the effective serial number of the change. With this information, the technician can determine the correct drawing for the current version, and any previous version, of the transceiver covered by the manual. (If the revision is applicable for all versions of the transceiver, it is not included in the revision column, as the change applies to all units.)

FREQUENCY SENSITIVE COMPONENTS

The values of most components are indicated on the schematic diagrams. However, components marked with an asterisk (*) vary in value according to frequency range. To determine the value of these components, refer to the chart at the bottom of the drawing.



* F. CHART

	L101	L103	L115	R104	C147	C149
F1	LA70260180	LA70260190	LA70260200	—	20p	18p
F3	LA70260080	LA70260090	LA70260100	—	13p	33p
F4	LA70260120	LA70260130	LA70260140	220k	13p	33p
F5	LA70260153	LA70260162	LA70260170	220k	11p	24p
				—	CH	CH

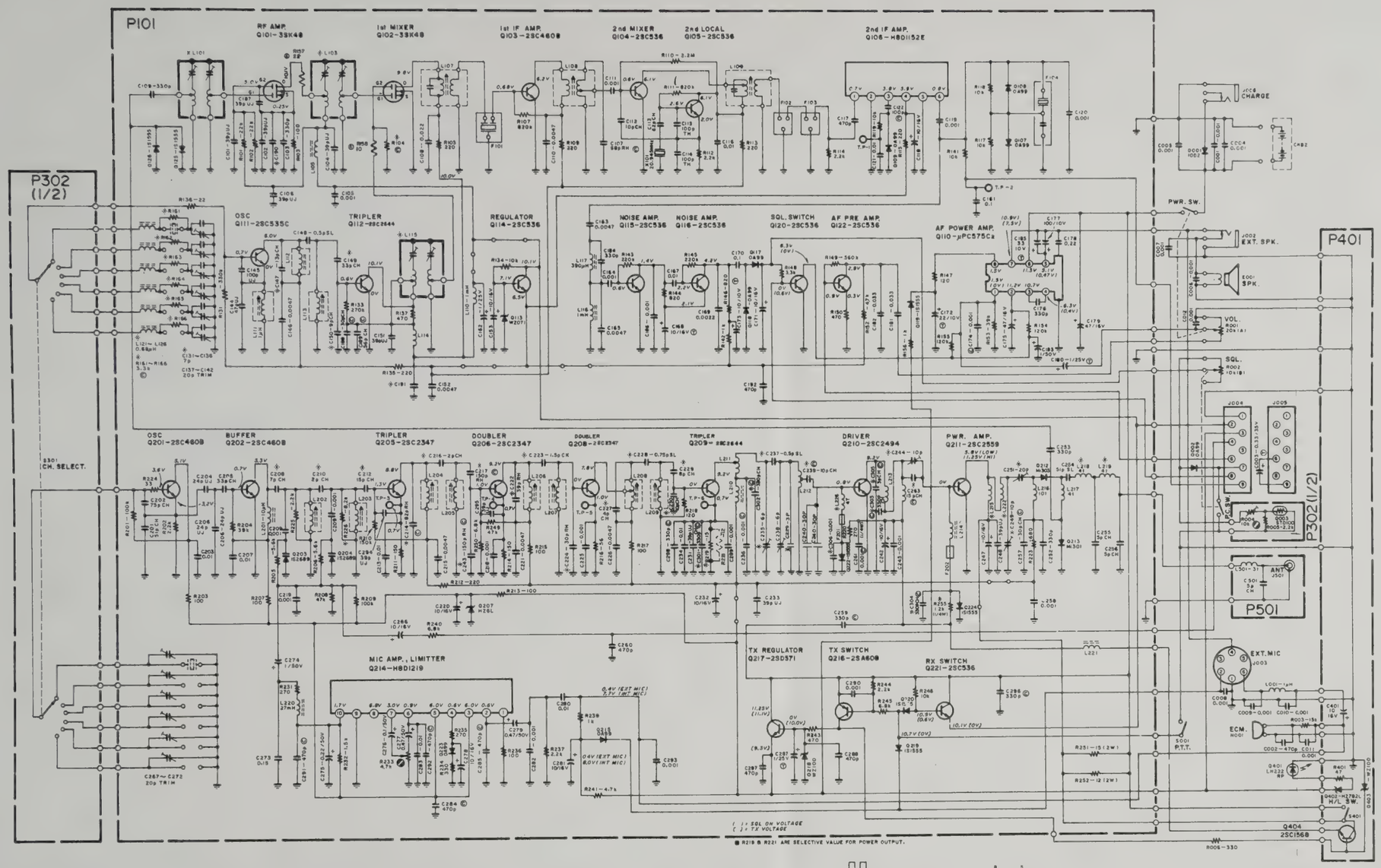
CATIONS CORP.
ON, CA. 90746
ES, CA. 90009

DR.	DATE
C.G.W.	12-6-84
P.E.	
APPR.	

L36349301A REV C

FIGURE 10. 734LC SCHEMATIC DIAGRAM

FIGURE 10. 734LC SCHEMATIC DIAGRAM



1 : DRAIN
2 : SOURCE
3 : GATE 1
4 : GATE 2

BOTTOM VIEW

3SK48
Q101, Q102

1 : EMITTER
2 : COLLECTOR
3 : BASE

BOTTOM VIEW

2SC2347
Q205, Q206
2SC4608
Q103, Q201, Q202
2SC535C
Q111

1 : BASE
2 : EMITTER
3 : COLLECTOR

BOTTOM VIEW

2SC2407
Q112
2SC2407(1)
Q208, Q209

1 : BASE
2 : COLLECTOR
3 : EMITTER

BOTTOM VIEW

2SD571
Q217

1 : EMITTER
2 : COLLECTOR
3 : BASE

BOTTOM VIEW

2SC536
Q104, Q105, Q114~Q116, Q120, Q122, Q221
2SA608
Q216

1 : COLLECTOR
2 : EMITTER (FRANGE)
3 : BASE

TOP VIEW

2SC2494
Q210

1 : COLLECTOR
2 : EMITTER (FRANGE)
3 : BASE

TOP VIEW

2SC2559
Q211

TOP VIEW

μPC575C2
Q110

FRONT VIEW

H8D1152E
Q106

FRONT VIEW

H8D1219
Q214

1 : EMITTER
2 : COLLECTOR
3 : BASE

BOTTOM VIEW

2SC1568
Q404

F. CHART

	L101	L103	L115	R104	C147	C149	C150	C212	C214	C217	C222	C224	C227	C229	C230	C235	C236	C239	C243	C244	C263	C237	C238	R226	L121 L126	C131 C136	C208	C210	C216	C223	C228	L218	L219	C190	C191	R219	C251	C249	L215	L222	R161 R166	R255	C240	C241	C201 C304	C305	C306	L226
F1	LA7026018O	LA7026019O	LA7026020O	—	20p	18p	43p	10p	100p	180p	47p RH	47p	5p	12p	18p	6p	0.001	10p	180p	20p	15p	0.5p	1P CK	3.3k	0.82μH	5p	10p	3p	3p	2p	1.0p CK	4T	4T	330p	330p		15Ω	20p	10p	TWIST COIL	—	—	1.2k	15P	15P	330p	3p	0.001	4T
F3	LA7026008O	LA7026009O	LA7026010O	—	13p	33p	9p	18p	82p	150p	39p RH	30p	3P CH	4P RH	8P RH	6p	001	5P CH	150p	10p	15p	0.5p	2P	6.2k	0.56μH	7p	7p	2p	2p	1.5p	0.75p	4T	4T	—	—		6.8Ω	20p	10p	TWIST COIL	—	3.3k	1.2k	30P	30P	330p	3p	0.001	4T
F4	LA7026012O	LA7026013O	LA7026014O	220k	13p	33p	8p	18p	82p	150p	36p CH	30p	4p	8p	11p	6p	0.001	10p	150p	10p	10p	0.5p		3.3k	0.68μH	7p	7p	2p	2p	1.5p	0.75p	4T	4T	—	—		15Ω	20p	10p	TWIST COIL	—	3.3k	1.2k	10P	10P	330p	3p	0.001	4T
F5	LA7026015O	LA7026016O	LA7026017O	220k	11p	24p	6p	13p	68p	150p	33p RH	27p	3p	8p	10p	4p	0.001	10p	120p	10p	—	0.5p		3.3k	0.68μH	7p	7p	2p	2p	1.5p	0.75p	3T	3T	—	—		15Ω	6p	6p	4T	1/2T	3.3k	1.2k	10P	10P	330p	—	0.001	4T
				—	CH	CH	CH	CH	CH	RH	—	RH	CH	CH	CH	CH	TRIM.	—	CH	RH	TRIM.	CH	SL	—	—	—	CH	CH	CH	CH	CK	SL	—	—	—	—		—	TRIM.	TRIM.	—	—	—	—	CH	CH	CH	CH	—	—

USED WITH	734LC
TITLE	SCHEMATIC
NO.	L36349301A
REV.	C
SCALE	
TOLERANCES unless otherwise noted	DEC. XX ± .010 DEC. XXX ± .005 FRACTION ± 1/64 ANGLE ± 1/2° HOLE DIA. ± .002 - .000
DR.	C.S.W
DATE	11.3.84
P.E.	
APPR.	

STANDARD COMMUNICATIONS CORP.
108 W. VICTORIA ST., CARSON, CA. 90745
P.O. BOX 92151, LOS ANGELES, CA. 90009

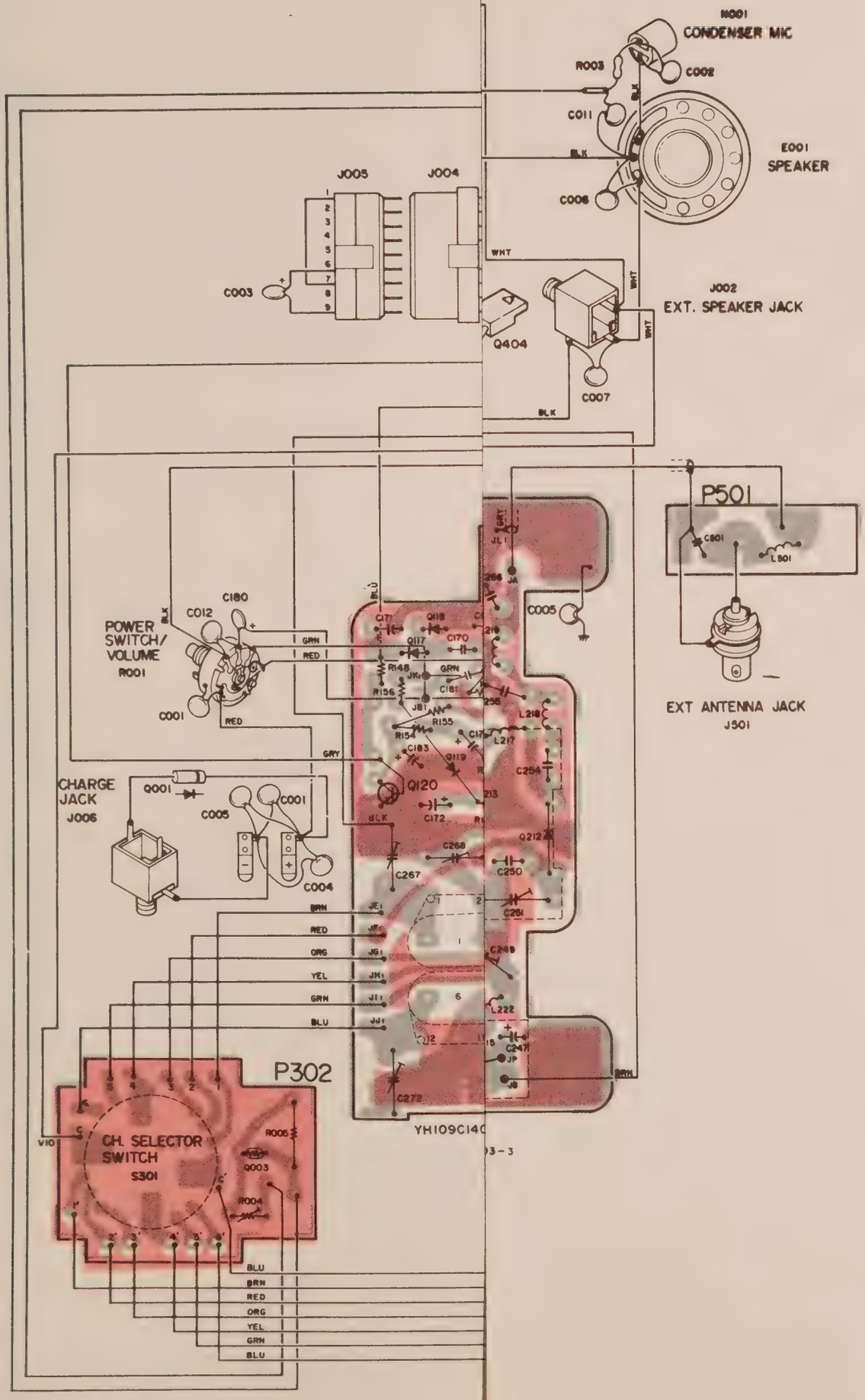
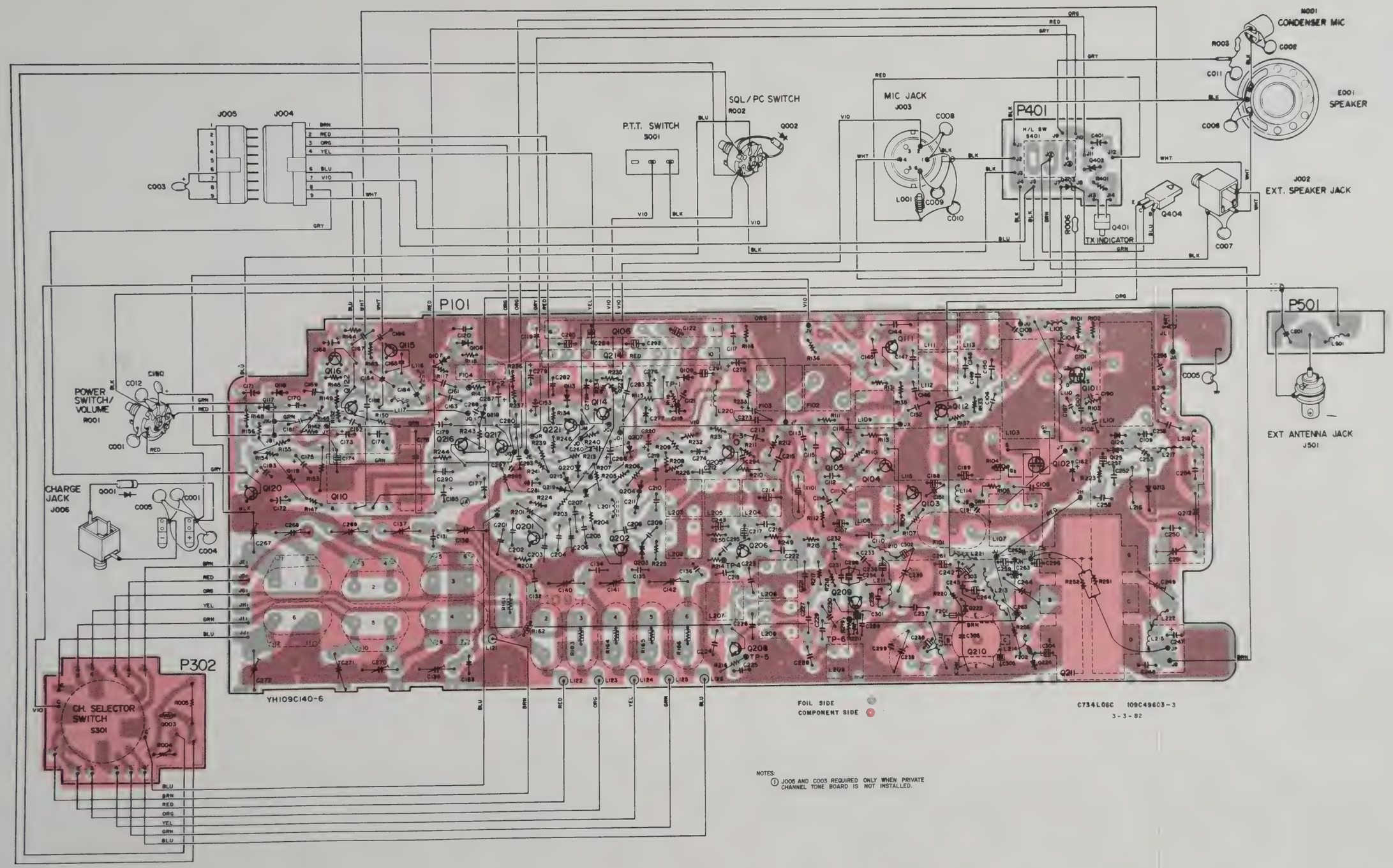


FIGURE 11. 734LC P.C. BOARD LAYOUT

A | B | C | D | E | F | G

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8



NOTES:
① J006 AND C003 REQUIRED ONLY WHEN PRIVATE CHANNEL TONE BOARD IS NOT INSTALLED.

FIGURE 11. 734LC P.C. BOARD LAYOUT

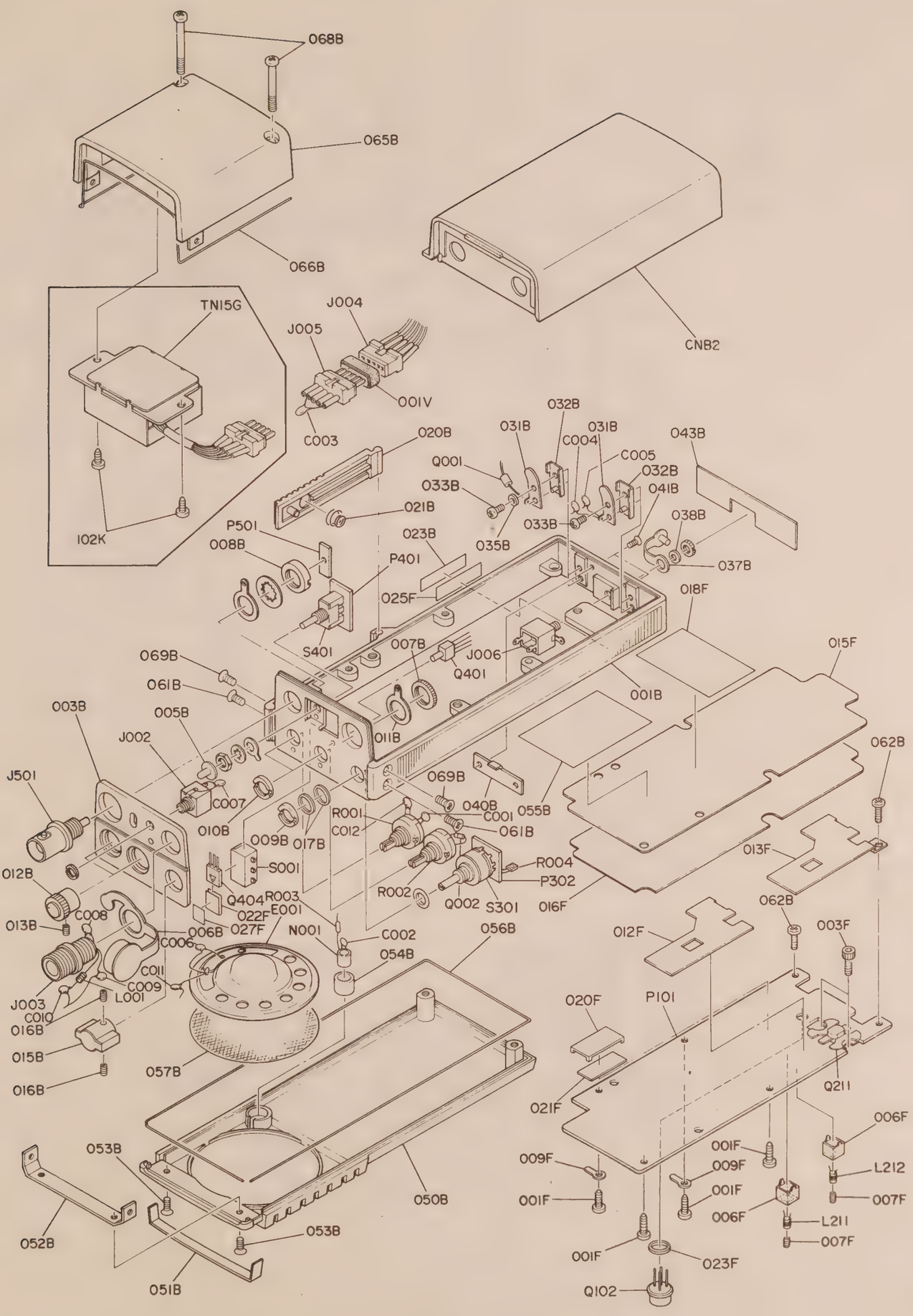
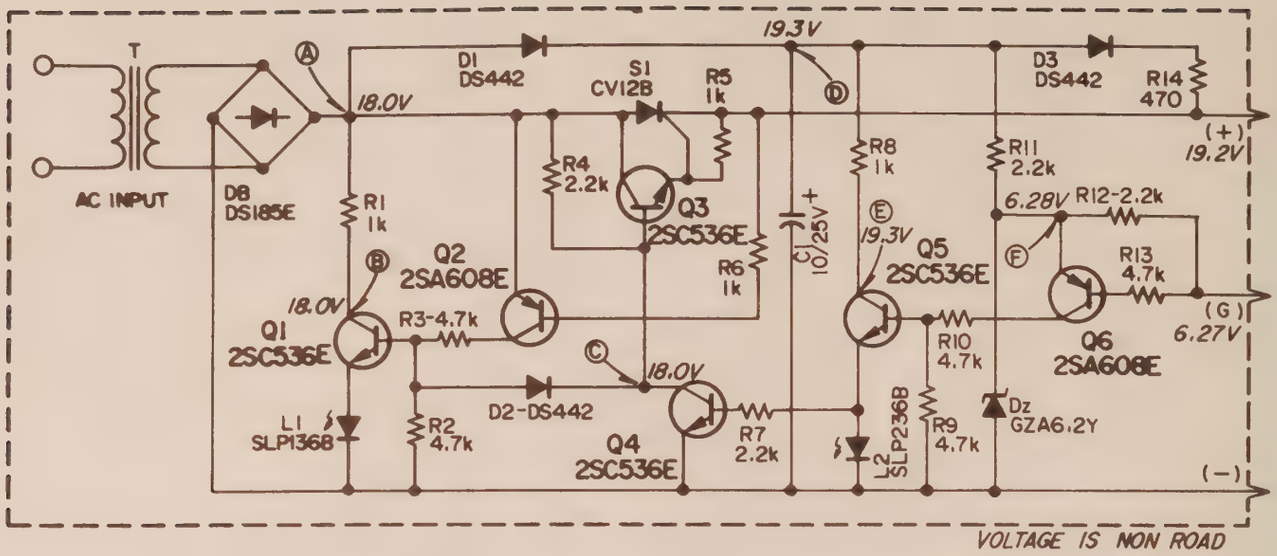
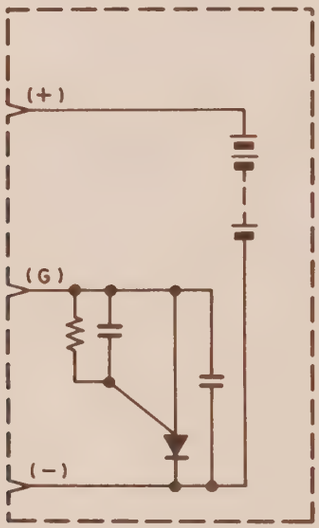
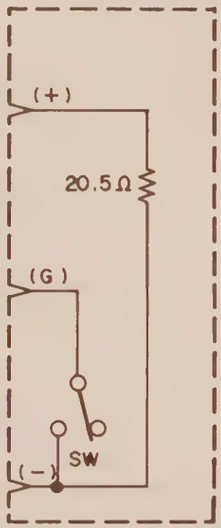


FIGURE 12. 734LC EXPLODED PARTS VIEW







TEST POINT	BATTERY ROAD		RESISTOR ROAD	
	RAPID	TRICKLE	RAPID	TRICKLE
(+)	12.95V	12.51V	9.8V	0.9V
(G)	6.24V	0.7V	6.2V	0V
A	13.2V	13.06V	10.4V	10.9V
B	5.6V	13.05V	2.2V	10.9V
C	13.2V	0.07V	10.4V	0.06V
D	13.3V	17.5V	15.6V	16.3V
E	13.3V	2.25V	15.6V	3.7V
F	6.25V	6.2V	6.2V	5.9V

FIGURE 13. CSA4 SERIES SCHEMATIC DIAGRAM

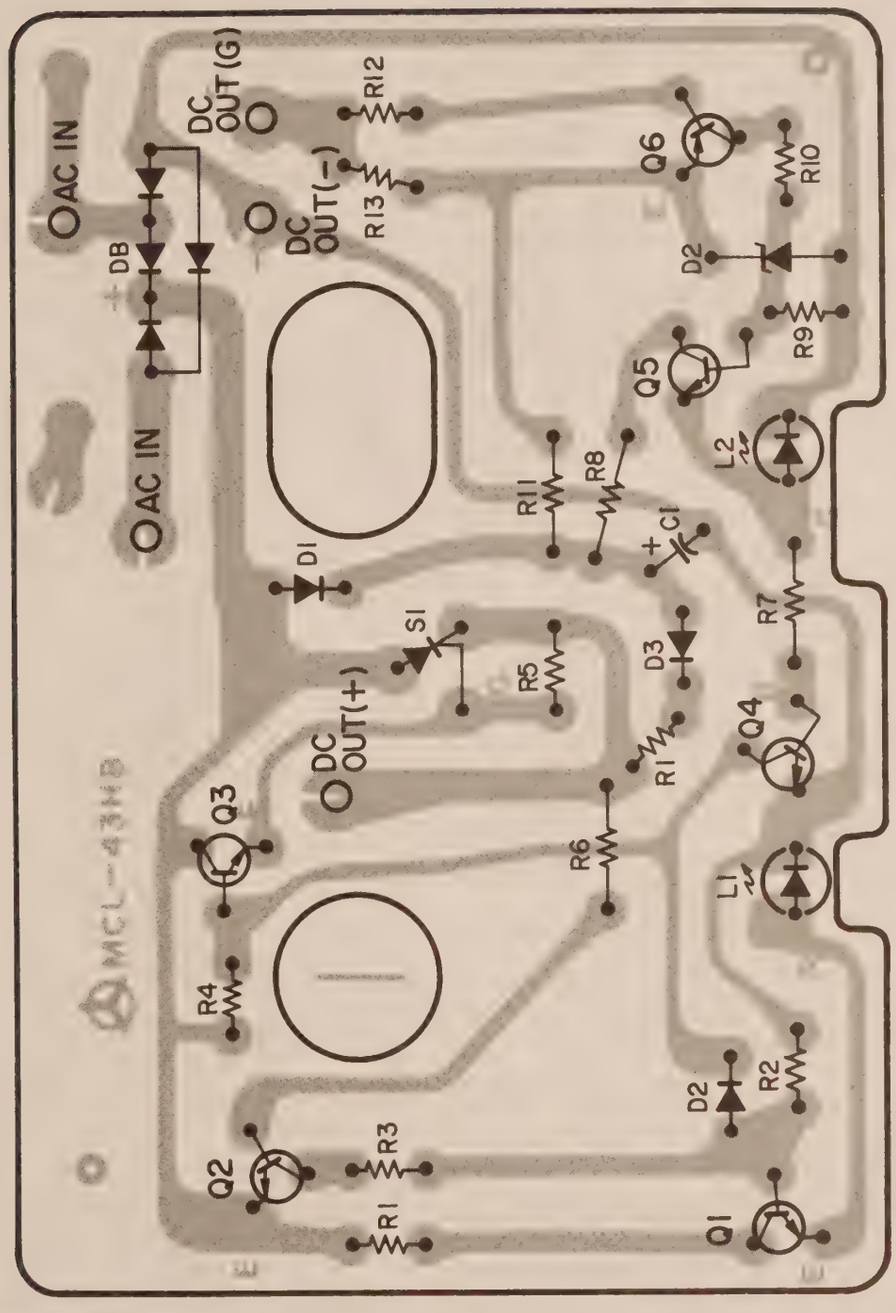


FIGURE 14. CSA4 SERIES P.C. BOARD LAYOUT

(FOIL SIDE WITH COMPONENT OVERLAY)

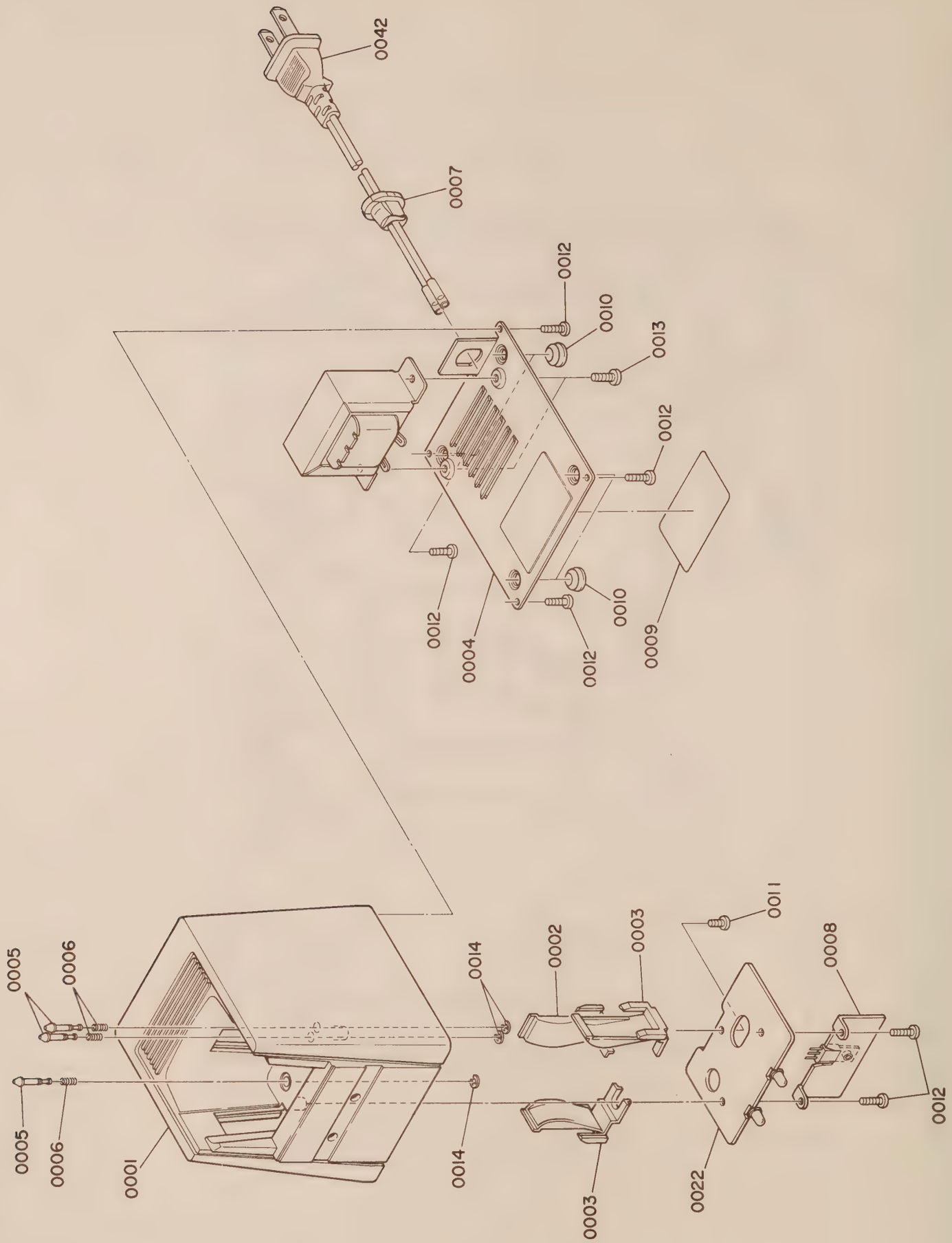


FIGURE 15. CSA4 SERIES EXPLODED PARTS VIEW

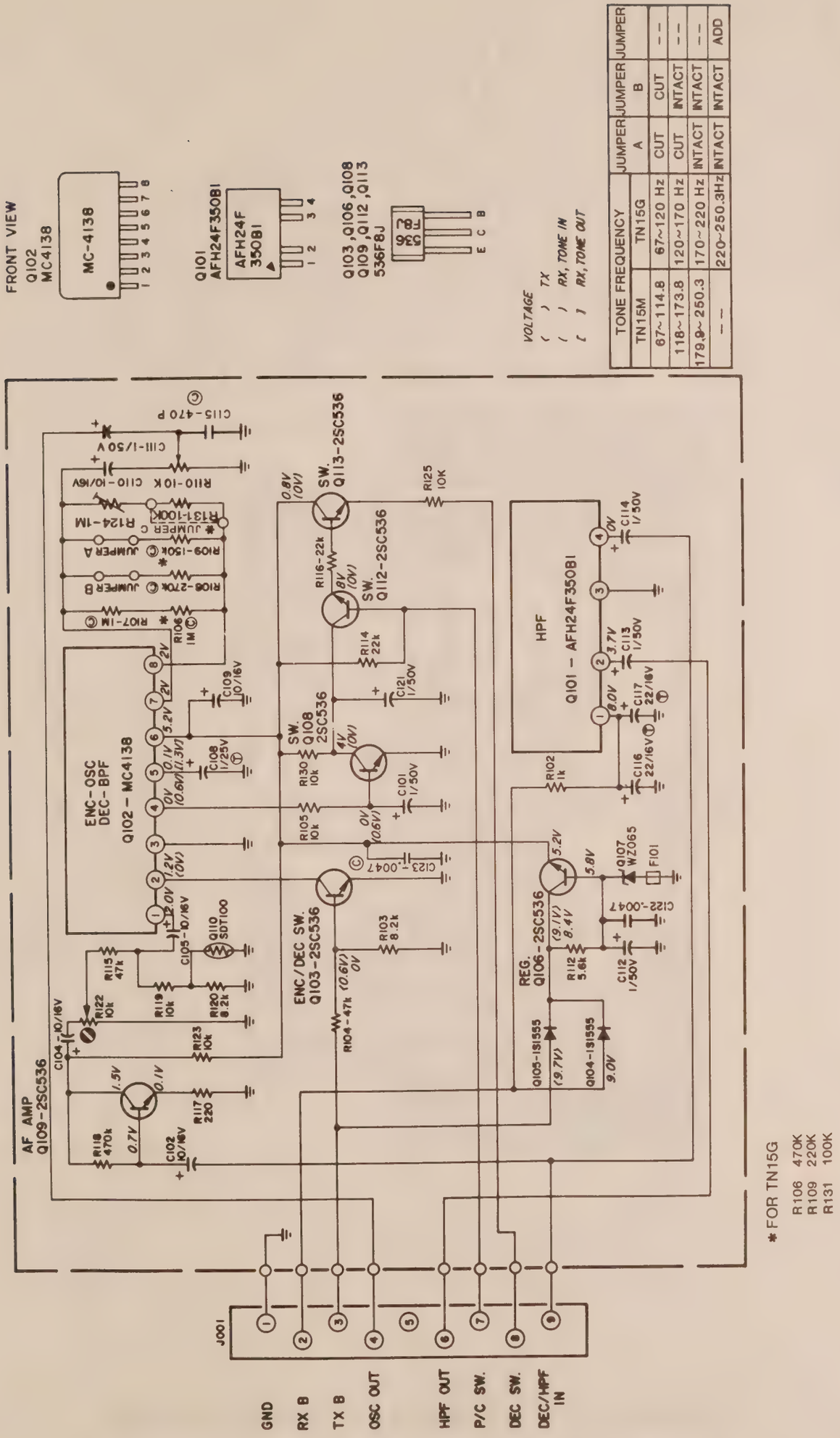


FIGURE 16. TN15M SCHEMATIC DIAGRAM

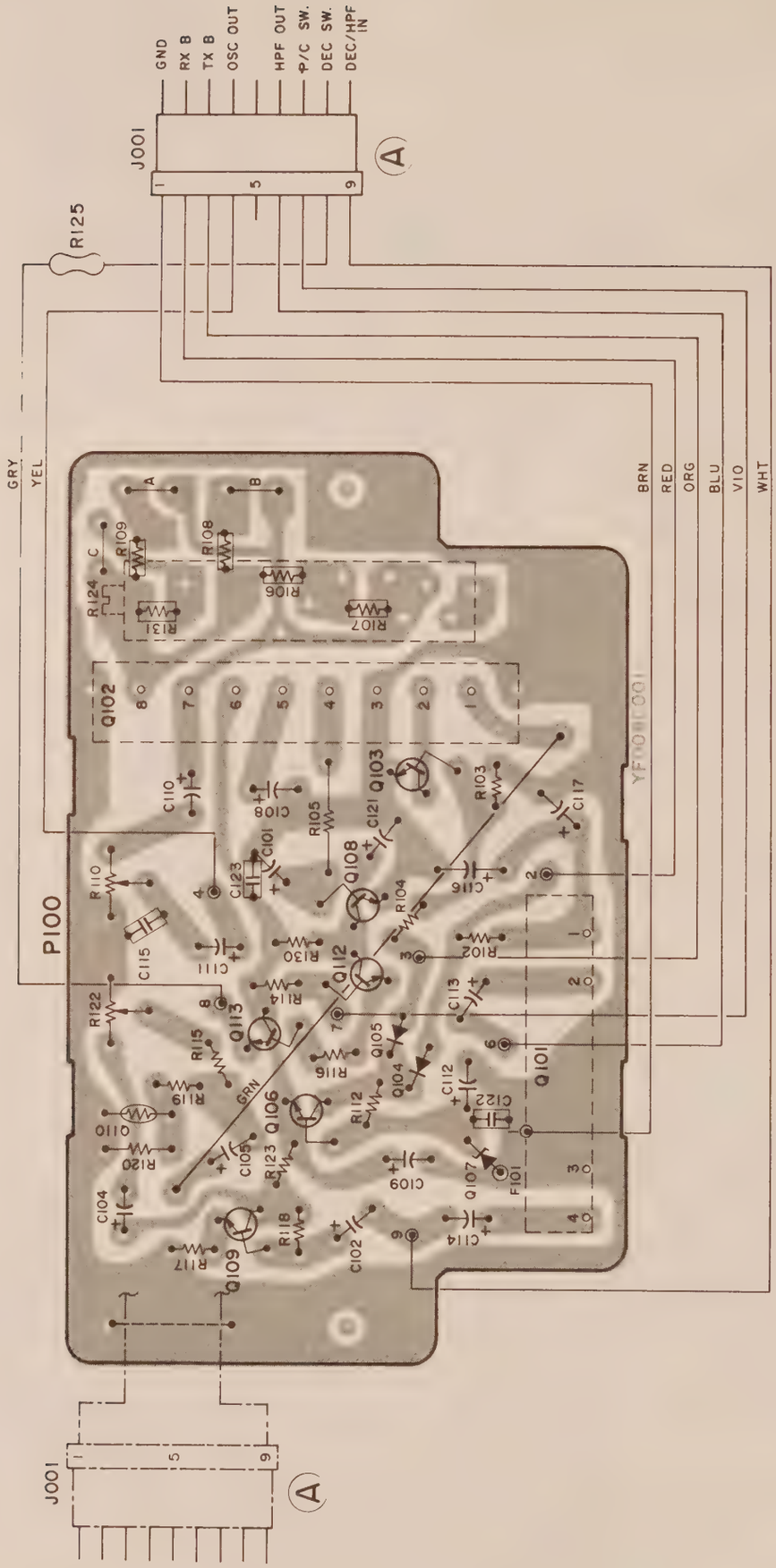


FIGURE 17. TN15M P.C. BOARD LAYOUT

(FOIL SIDE WITH COMPONENT OVERLAY)

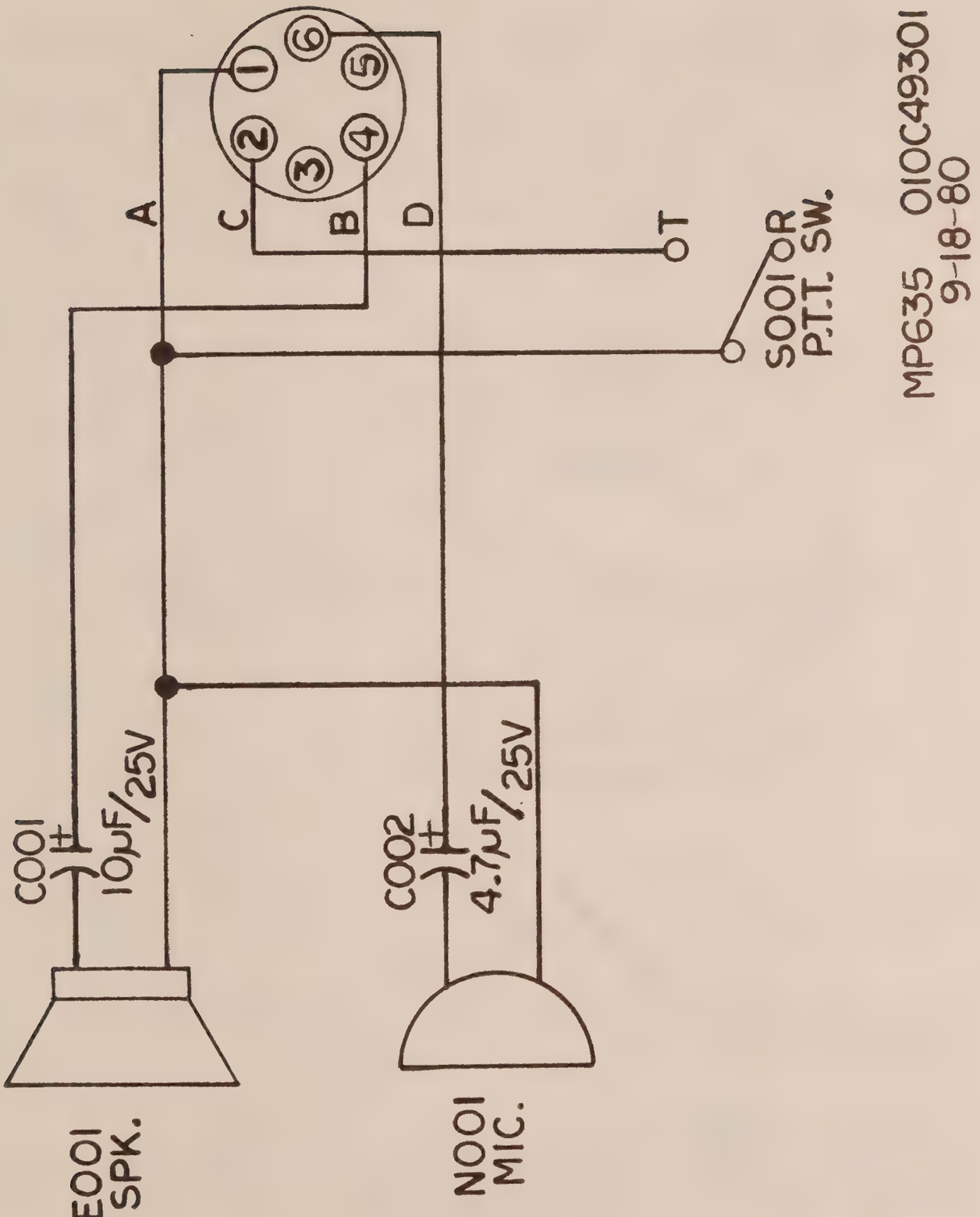


FIGURE 18. MP635G SCHEMATIC DIAGRAM

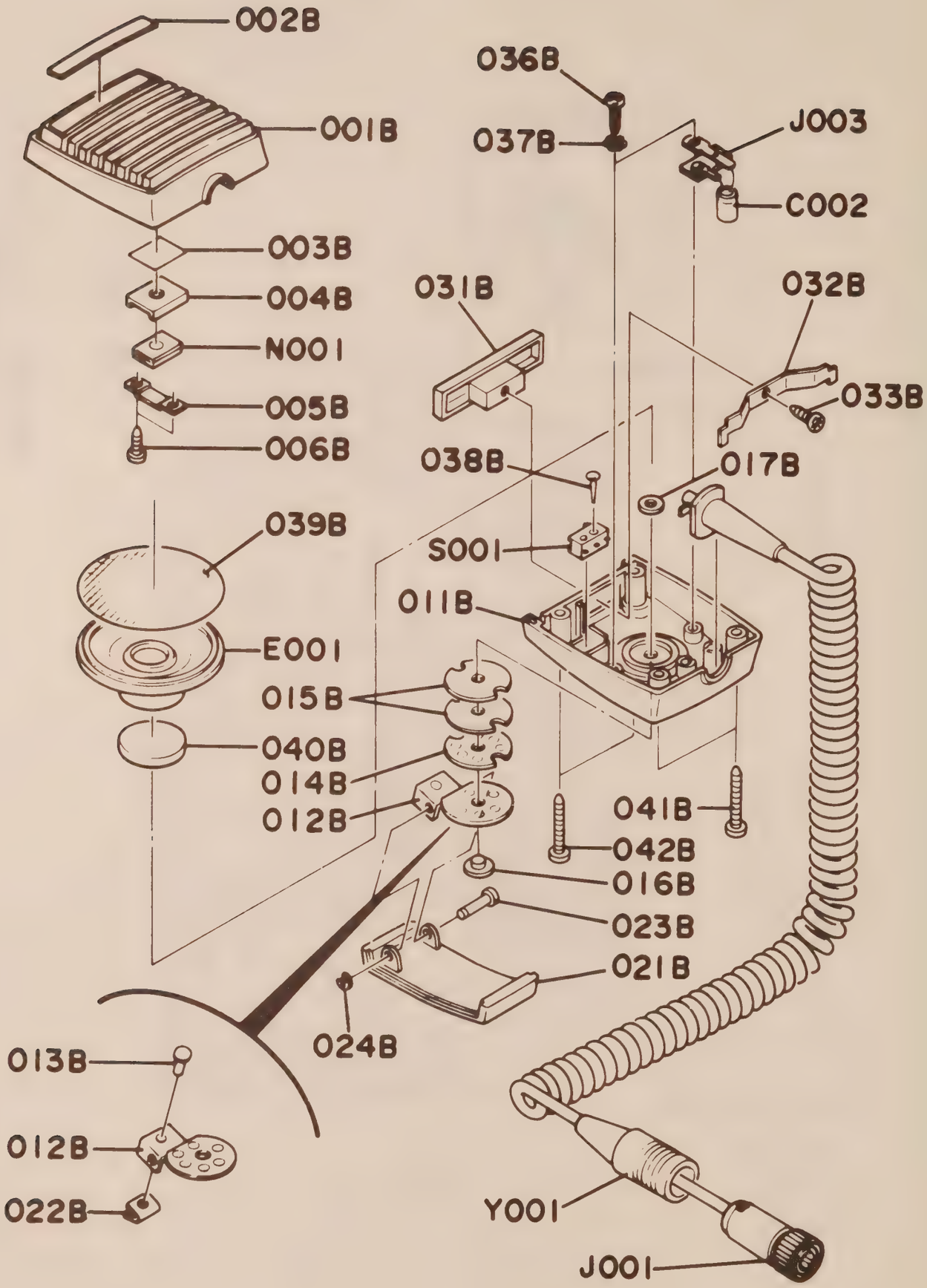


FIGURE 19. MP635G EXPLODED PARTS VIEW

PARTS LIST

GENERAL

The following parts lists include the significant mechanical parts and all the electrical parts of the transceiver, except certain common resistors. Also included are separate parts lists for the optional rapid charger (CSA4 Series), the tunable tone board (TN15M), and the external speaker/microphone (MP635G). The following information will be useful in interpreting data in the parts lists which are not self-explanatory.

REVISIONS

The parts lists in this manual are for the current build of the transceiver, as of the printing date. If a different part was used in a previous build details of the parts change are included in the revision table on the back of the applicable drawing, in the Drawings section, enabling you to determine the correct replacement part. (If the new part is the recommended replacement part for all units, the old part is not listed in the revision table.)

FREQUENCY SENSITIVE COMPONENTS

Components which vary in value according to frequency range are listed with all other parts. The appropriate frequency range (F3, F4, etc.) is included in the Value Column.

P.C. BOARD LOCATION

This guide references each electrical part to a corresponding location on the printed circuit board layout drawing. The P.C. board layout drawing is gridded for easy location. An asterisk (*) indicates the part is not shown on the printed circuit board drawing.

ORDERING REPLACEMENT PARTS

To order replacement parts for your transceiver from the factory contact the SCC Parts Department at (213) 532-5300, ext. 248, or write to that department. at P.O. Box 92151, Los Angeles, California, 90009.

When ordering replacement parts, you must give complete information including reference designator, description, value, part number, and the radio model number. Failure to provide sufficient information may result in SCC's inability to fill your parts orders.

Please note that crystals and crystal filters are not stocked by the Parts Department, but instead by the Frequency Management Department. When ordering crystals/crystal filters, contact Frequency Management at the number listed above, ext. 251, or write to them at the above address.

734LC ELECTRICAL

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
Capacitors				
C001	0.001 uF	Ceramic	DK16102300	A5
C002	470 pF	Ceramic	DK16471300	G1
C003	0.33 uF, 35 V	Electrolytic	EV33403560	A2
C004,C005,C006, C007,C008,C009, C010,C011,C012	0.001 uF	Ceramic	DK18102300	A5,A5,G1, G3,E1,E2, E2,G1,A4
C101,C102,C104, C106,C151,C187	39 pF	Ceramic	DD15390360	F4,F4,F4, F4,E5,F4
C103,C109,C176, C184	330 pF	Ceramic	DK16331300	F4,F4,B5, B4
C190,C191	330 pF (F1)	Ceramic	DK16331300	F4,E5
C105,C111,C119, C120,C186	0.001 uF	Ceramic	DK16102300	F3,E5,C3, C3,B3
C107	68 pF	Ceramic	DD45680330	E5
C108	0.022 uF	Semiconductor	DS17223010	F5
C110,C146,C152, C163,C165	0.0047 uF	Semiconductor	DS17472010	E6,E4,E4, C4,B4
C112	10 pF	Ceramic	DD11100300	E5
C113	62 pF	Ceramic	DD15620300	E5
C114,C115	100 pF	Ceramic	DD15101350	E5,E5
C116,C167	0.01 uF	Semiconductor	DS17103010	E5,B4
C117	470 pF	Ceramic	DK16471300	D4
C118,C153,C171	10 uF, 16 V	Electrolytic	EJ10601610	D4,C4,B4
C121	0.01 uF	Ceramic	DA17103010	D4
C122	100 pF	Ceramic	DD45101300	D4
C131,C132,C133, C134,C135,C136	5 pF (F1)	Ceramic	DD10050300	C6,C6,C7, D6,D6,D6
C131,C132,C133, C134,C135,C136	7 pF (F3,F4,F5)	Ceramic	DD11070300	C6,C6,C7, D6,D6,D6
C137,C138,C139, C140,C141,C142	20 pF	Trimming	CT12000110	B6,C6,C7, C6,D6,D6
C144	47 pF	Ceramic	DD15470360	E3
C145	100 pF	Ceramic	DD15101360	E4
C147	20 pF (F1)	Ceramic	DD15200300	E4
C147	13 pF (F3,F4)	Ceramic	DD15130300	E4
C147	11 pF (F5)	Ceramic	DD15110300	E4
C148	0.5 pF	Ceramic	DD10005370	E4
C149	18 pF (F1)	Ceramic	DD15180300	F4
C149	33 pF (F3,F4)	Ceramic	DD15330300	F4
C149	24 pF (F5)	Ceramic	DD15240300	F4
C150	43 pF (F1)	Ceramic	DD15430300	F4
C150	9 pF (F3,F4)	Ceramic	DD11090300	F4
C150	8 pF (F5)	Ceramic	DD11080300	F4
C161,C170	0.1 uF	Ceramic	DK26104010	C4,B4
C162,C180	1 uF, 25 V	Electrolytic	EV10502560	F5,A4
C164	0.001 uF	Semiconductor	DS17102010	B4
C168,C173	10 uF, 10 V	Electrolytic	EV10601060	B4,B5

734LC ELECTRICAL

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
C169	0.0022 uF	Semiconductor	DS17222010	B4
C172	22 uF, 10 V	Electrolytic	EV22601060	B5
C174	0.001 uF	Ceramic	DK46102300	B5
C175,C179	47 uF, 16 V	Electrolytic	EA47601630	B5,C4
C177	100 uF, 10 V	Electrolytic	EA10701030	C5
C178	0.22 uF	Ceramic	DK27224010	B5
C181,C182	0.33 uF	Ceramic	DK26333010	B4,B4
C183	1 uF, 50 V	Electrolytic	EJ10505010	B5
C185	33 uF, 10 V	Electrolytic	EV33601060	C5
C188	30 pF	Ceramic	DD45300300	E5
C189	56 pF	Ceramic	DD45560300	F5
C201	51 pF	Ceramic	DD15510300	C6
C202	75 pF	Ceramic	DD15750300	C6
C203,C207,C213, C280,C283	0.01 uF	Semiconductor	DS17103010	C6,C5,D5, C4,D4
C204,C206	24 pF	Ceramic	DD15240360	C6,C6
C205	33 pF	Ceramic	DD15330300	C6
C208,C227	10 pF (F1)	Ceramic	DD11100300	D6,E6
C208,C227,C236	7 pF (F3)	Ceramic	DD11070300	D6,E6,E6
C208	7 pF (F4,F5)	Ceramic	DD11070300	D6
C209,C211	0.001 uF	Ceramic	DA17102010	D6,D5
C210,C216	3 pF (F1)	Ceramic	DD10030300	D5,D6
C210,C216	2 pF (F3)	Ceramic	DD10020300	D5,D5
C210,C216,C235	2 pF (F4,F5)	Ceramic	DD10020300	D5,D6,E6
C212	15 pF	Ceramic	DD15150300	D5
C214	100 pF (F1)	Ceramic	DD45101330	D5
C214	82 pF (F3,F4)	Ceramic	DD45820330	D5
C214	68 pF (F5)	Ceramic	DD45680330	D5
C215,C221,C226	0.0047 uF	Semiconductor	DS17472010	D5,E6,D7
C217,C243	180 pF (F1)	Ceramic	DD45181330	D5,D6
C217,C243	150 pF (F3)	Ceramic	DD45151330	D5,D6
C217	150 pF (F5)	Ceramic	DD45151330	D5
C218,C219,C225, C258,C282,C290	0.001 uF	Ceramic	DK16102300	D6,D5,D7, F5,C4,C5
C220,C232,C242, C247,C278,C281, C286	10 uF, 16 V	Electrolytic	EJ10601610	D5,E6,E6, F7,C4,C5, D5
C222,C224	47 pF (F1)	Ceramic	DD15470330	D6,D7
C222	39 pF (F3)	Ceramic	DD15390330	D6
C222	33 pF (F4,F5)	Ceramic	DD15330330	D6
C223	2 pF (F1)	Ceramic	DD10020300	D6
C223	1.5 pF (F3,F4,F5)	Ceramic	DD10015300	D6
C224	36 pF (F3)	Ceramic	DD45360330	D7
C224	30 pF (F4)	Ceramic	DD15300330	D7
C224	27 pF (F5)	Ceramic	DD15270330	D7
C227,C236,C239	6 pF (F4)	Ceramic	DD11060300	E6,E6,E7
C227,C239	6 pF (F5)	Ceramic	DD11060300	E6,E7

734LC ELECTRICAL

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
C228,C237	1.5 pF (F1)	Ceramic	DD10015300	E7,E7
C228,C237	0.75 pF (F3,F4, F5)	Ceramic	DD10008370	E7,E7
C229	12 pF (F1)	Ceramic	DD15120330	E7
C229	10 pF (F3,F4,F5)	Ceramic	DD11100330	E7
C230	20 pF (F1)	Ceramic	DD15200330	E6
C230	15 pF (F3,F4,F5)	Ceramic	DD15150330	E6
C231,C233,C294, C295	39 pF	Ceramic	DD15390360	E6,E6,D5, D6
C234	0.01 uF	Ceramic	DK78103010	E6
C235	5 pF (F1)	Ceramic	DD10050300	E6
C235	3 pF (F3)	Ceramic	DD10030300	E6
C236	11 pF (F1)	Ceramic	DD15110300	E6
C236	5 pF (F5)	Ceramic	DD10050300	E6
C238	27 pF (F1,F3)	Ceramic	DD15270300	E7
C238	20 pF (F4)	Ceramic	DD15200300	E7
C238	18 pF (F5)	Ceramic	DD15180300	E7
C239	9 pF (F1)	Ceramic	DD11090300	E7
C239	6 pF (F3)	Ceramic	DD11060300	E7
C240,C241,C263	15 pF (F1,F3)	Ceramic	DD45150300	E6
C240,C241,C246, C262	10 pF (F4,F5)	Ceramic	DD41100300	E6,E7,F7 F7
C244,C251	20 pF (F1)	Trimming	CT12000020	F6,F6
C244	10 pF (F3,F4,F5)	Trimming	CT11000020	F6
C245,C289,C293	0.001 uF	Ceramic	DK18102300	E6,E7,C5
C246,C262	10 pF (F1,F3)	Ceramic	DD41100330	F7,F7
C248	39 pF	Ceramic	DD15390330	F7
C249	10 pF	Trimming	CT11000020	F6
C250	5 pF (F4,F5)	Ceramic	DD10050300	F6
C251	20 pF (F3,F4,F5)	Trimming	CT12000020	F6
C252,C253	330 pF	Ceramic	DK16331300	F5,F5
C254	51 pF	Ceramic	DD15510370	G5
C255,C256	5 pF	Ceramic	DD10050300	F5,F4
C257	30 pF	Ceramic	DD45300300	F5
C259	330 pF	Ceramic	DD45331300	F6
C260	470 pF	Ceramic	DK16471300	D5
C261	0.001 uF	Ceramic	DK46102300	E6
C263	10 pF (F4)	Ceramic	DD41100300	F6
C264	4 pF	Ceramic	DD41040300	F6
C266	3 pF (F1,F4,F5)	Ceramic	DD40030300	F7
C267,C268,C269, C270,C271,C272	20 pF	Trimming	CT12000110	B6,B6,B6, B7,B7,B7
C273	0.15 uF	Ceramic	DK26154010	D4
C274,C276	1 uF, 50 V	Electrolytic	EJ10505010	D5,D4
C275	0.22 uF, 50 V	Electorlytic	EJ22405010	D4
C277,C279	0.47 uF, 50 V	Electorlytic	EJ47405010	D4,C4

734LC ELECTRICAL

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
C284,C285,C291 C292	470 pF	Ceramic	DD45471370	C4,C4,D4, D4
C287	1 uF, 25 V	Electrolytic	EV10502560	C4
C296,C298	330 pF	Ceramic	DD45331300	C4,E7
C299	470 pF	Ceramic	Dk16471300	F7
C401	10 uF, 16 V	Electrolytic	EJ10601610	F1
C501	5 pF	Ceramic	DD10050300	G4
Inductors				
L001	1 uH	Choke Coil	LC11020020	E2
L101	(F1)	Antenna Coil	LA70260180	F4
L101	(F3)	Antenna Coil	LA70260080	F4
L101	(F4)	Antenna Coil	LA70260120	F4
L101	(F5)	Antenna Coil	LA70260150	F4
L103	(F1)	Antenna Coil	LA70260190	F5
L103	(F3)	Antenna Coil	LA70260090	F5
L103	(F4)	Antenna Coil	LA70260130	F5
L103	(F5)	Antenna Coil	LA70260160	F5
L105,L114	0.3 uH	Choke Coil	LC13010020	F3,E5
L107	-	I.F.T.	LI70280030	F6
L108	-	I.F.T.	LI55016190	E5
L109	-	I.F.T.	LI55016200	E4
L110,L116	1 mH	Choke Coil	LC11050040	F4,C4
L111	-	Doubler Coil	LW55016080	E4
L112	-	Doubler Coil	LW55016010	L112
L113	-	Doubler Coil	LW55016020	E4
L115	(F1)	Antenna Coil	LA70260200	E5
L115	(F3)	Antenna Coil	LA70260100	E5
L115	(F4)	Antenna Coil	LA70260140	E5
L115	(F5)	Antenna Coil	LA70260170	E5
L117	390 uH	Choke Coil	LC13940010	B4
L121,L122,L123, L124,L125,L126	0.68 uH F1	Choke Coil	LC18210030	C7,C7,C7, D7,D7,D7
L121,L122,L123, L124,L125,L126	0.68 uH (F3,F4, F5)	Choke Coil	LC16810070	C7,C7,C7, D7,D7,D7
L201	10 uH	Choke Coil	LC11030020	D5
L202,L203	-	Antenna Coil	LA55016050	D6,D5
L204,L205	-	Doubler Coil	LW55016030	D5,D5
L206,L207	-	Doubler Coil	LW55016020	D6,D6
L208	-	Doubler Coil	LW55016050	D7
L209	-	Doubler Coil	LW55016020	E7
L210	2 T	Choke Coil	LC12610010	E6
L211	2 3/4 T	Choke Coil	LC15000210	E6
L212	1 3/4 T	Choke Coil	LC13300010	E7
L213	-	Twist Coil	LM42518010	F6
L214	4 T	Choke Coil	LC13400010	F7

734LC ELECTRICAL

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
L215	-	Twist Coil	LM42518010	F7
L216	10 T	Choke Coil	LC11610010	F5
L217	4 T	Choke Coil	LC13400010	F5
L218	4 T	Choke Coil	LC13400010	G5
L219	4 T	Choke Coil	LC13400010	F4
L220	27 mH	Choke Coil	LC22760010	D4
L221	0.3 uH	Choke Coil	LC13010022	F6
L501	0.028 uH	Choke Coil	LC12800010	G4
Semiconductors				
Q001	1002	Diode	HD20001100	A5
Q002	OA99	Diode	HD10005020	D1
Q003	-	Thermistor	HH00007030	A7
Q101	3SK48A	F.E.T.	HF400481A0	F4
Q102	2SK48	F.E.T.	HF40048100	F5
Q103	2SC460B	Transistor	HT304601B0	E5
Q104,Q105,Q114, Q115,Q116,Q120, Q122	2SC536	Transistor	HT305360F0	E5,E5,D4, B4,B4,B5, B4
Q106	H801152E	I.C.	HC10012230	D3
Q107,Q108,Q109, Q117,Q118	OA99	Diode	HD10005020	C4,C4,D4, B4,B4
Q110	UPC575C2	I.C.	HD10037060	B5
Q111	2SC535C	Transistor	HT305351C0	E4
Q112	2SC2407	Transistor	HT32407100	E4
Q113	WZ071	Zener Diode	HD30023090	C4
Q119,Q125,Q126	1S1555	Diode	HD20011050	B5,F5,F5
Q201,Q202	2SC460B	Transistor	HT304601B0	C6,D6
Q203	1S2689 (F1,F3,F4)	Varicap	HD40011090	D6
Q204	1S2689	Varicap	HD40011090	D5
Q205,Q206	2SC2347	Transistor	HT32347100	D5,D6
Q207	H26L	Zener Diode	HD30008010	D5
Q208	2SC2407	Transistor	HT32407100	D7
Q209	2SC2407 (1)	Transistor	HT324071Z0	E6
Q210	2SC2494	Transistor	HT32494100	E7
Q211	2SC2559	Transistor	HT32559100	F7
Q212	MI303	Diode	HD20005200	G5
Q213	MI301	Diode	HD20001200	F5
Q214	H8D1219	I.C.	HC10004230	D4
Q215,Q223	OA99	Diode	HD10005020	C5,D4
Q216	2SA608	Transistor	HT106082A0	C5
Q217	2SD571	Transistor	HT40571100	C5
Q218	WZ100	Zener Diode	HD30072090	C4
Q219,Q220,Q222, Q224	1S1555	Diode	HD20011050	C5,C5,E6 F7
Q221	2SC536	Transistor	HT305360F0	C4
Q401	LN222RP	L.E.D.	HI10025020	F2

734LC ELECTRICAL

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
Q402	HZ7B2L	Zener Diode	HD30030010	F2
Q403	WZ100	Zener Diode	HD30072090	F1
Q404	2SD571	Transistor	HT40571100	F1
Resistors				
R001	20k ohm	Variable	RB12030020	A4
R002	10k ohm	Variable	RB11030070	D2
R004	10k ohm	Variable	RA01030520	A8
R104	220k ohm, 1/8 W (F4,F5)	Chip	RI05224180	F5
R137	820 ohm, 1/8 W (F1)	Fixed Carbon	GD05821187	E4
R137	470 ohm 1/8 W (F3,F4,F5)	Fixed Carbon	GD05471187	E4
R161,R162,R163, R164,R165,R166	3.3k ohm, 1/8 W (F3,F4,F5)	Chip	RI05332180	C6,C7,C7 D7,D7,D7
R211,R214	150 ohm, 1/4 W	Fixed Carbon	GD05151140	D5,D6
R213	100 ohm, 1/4 W	Fixed Carbon	GD05101140	C5
R216	56 ohm, 1/4 W	Fixed Carbon	GD05560140	D7
R220	270 ohm, 1/4 W	Fixed Carbon	GD05271140	E6
R226	3.3k ohm, 1/8 W (F1,F4,F5)	Fixed Carbon	GD05332187	D5
R226	8.2k ohm, 1/8 W (F3)	Fixed Carbon	GD05822187	D5
R233	4.7k ohm	Trimming	RA04720100	D4
R251	15 ohm, 2 W	Fixed Metal Oxide	GJ05150020	F6
R252	12 ohm, 2 W	Fixed Metal Oxide	GJ05120020	F6
R253	27 ohm, 1/8 W (F1)	Fixed Carbon	GD05270180	F7
R253	39 ohm, 1/8 W (F3,F4)	Fixed Carbon	GD05390180	F7
R253	56 ohm, 1/8 W (F5)	Fixed Carbon	GD05560180	F7
R255	560 ohm, 1/4 W	Fixed Carbon	GD05561140	F6
	Resistors not listed are standard, fixed carbon film, ±5%, 1/8 watt. The resistance values, in ohms, are indicated on the schematic diagram.			
Miscellaneous Electrical				
E001	8 ohm	Speaker	QK00508010	G1
F101	21.4 MHz	Crystal	XU721400M5	E6
F102,F103	CFU455E	Ceramic Filter	FG455304E0	E4,D4
F104	CFA455S	Filter	FH455301E0	C4
F201,F202	-	Ferrite Core	FC90050010	E7,F7
J002	-	Jack	YJ01001020	G2
J003	6-pin	Jack	YJ10001600	E1
J004	9-pin	Jack	YJ10000520	B1
J005	9-pin	Plug	YP10001060	B1
J006	-	Jack	YJ01001020	A6

734LC ELECTRICAL

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER	P.C. BOARD LOCATION
J501	BNC	Jack	YJ10001620	G5
N001	-	Microphone	MS50000100	G1
S001	-	Switch	SM01020210	D1
S301	-	Switch	SR02060120	A8
S401	-	Switch	SC01020380	F1
WW01	-	Jumper Lead	YU06097512	*
X101	20.945 MHz	Crystal	XZ42094505	D5
X102	21.855 MHz	Crystal	XZ42185505	B5
Z002	-	Whip Antenna	AZ211Z91Z0	*

734LC MECHANICAL

REFERENCE DESIGNATOR	DESCRIPTION	SCC PART NUMBER
001B	Frame	109C401012
003B	Escutcheon	109C063012
005B	Knob	4736154060
006B	Cover	109C053023
007B	Nut	53228059E0
008B	Nut	53228119E0
009B	Nut	53226019E0
010B	Nut	53227069E0
011B	Lug	62100019E0
012B	Assembly, Knob	109C154410
015B	Assembly, Knob	109C154400
020B	Button	109C270014
021B	Spring	109C115012
023B	Label	3729861043
031B	Contact	109C123010
032B	Insulator	109C120022
033B	Screw	51062603E0
034B	Screw	55062604B0
035B	Washer	59260505P0
037B	Cover	109C053030
038B	Washer	59046502G9
040B	Stopper	109C114010
041B	Screw	51040205E0
043B	Nameplate	109C265024
050B	Assembly, Case	109C064400
055B	Label	109C861012
061B	Screw	51142605C0
062B	Screw	51102608E0
065B	Assembly, Case	109C064410
069B	Screw	51142605C0
001F	Screw	51282606B0
003F	Bolt	52730305S9
006F	Shield	3621109032
007F	Core	3621161012
009F	Lug	62261240W0
011F	Shield	109C109022
012F	Insulator	109C120040
013F	Shield	109C109030
014F	Insulator	109C120050
015F	Shield	109C109013
016F	Insulator	109C120012
017F	Label	4733861030
018F	Label	109C861020
020F	Shield	109C109040
021F	Insulator	109C120060
023F	Washer	59260505P0
001V	Buffer	109C056020

CSA4 SERIES RAPID CHARGER

REFERENCE DESIGNATOR	DESCRIPTION	SCC PART NO.
Electrical		
C1	10 uF, 25 V Electrolytic Capacitor	EA10602530
D1,D2,D3	Diode (DS442)	HD2001703R
DB	Bridge (DS185E)	HE2000103R
DZ	Zener Diode (GZA6.2Y)	HD3000203R
L1	L.E.D. (SLP136B)	HI1001703R
L2	L.E.D. (SLP236B)	HI1001803R
Q1,Q3,Q4,Q5	Transistor (2SC536E)	HT305361E0
Q2,Q6	Transistor (2SA608E)	HT1060810R
R1,R5,R6,R8	1K ohm, 1/4 W Resistor	GD05102140
R2,R3,R9,R10,R13	4.7K ohm, 1/4 W Resistor	GD05472140
R4,R7,R11,R12	2.2K ohm, 1/4 W Resistor	GD05222140
R14	470 ohm, 1/4 W Resistor	GD05471140
S1	Thyristor (CV12B)	HB0000101R
T (CSA4)	Transformer (120 VAC)	TS1481312R
T (CSA4SA)	Transformer (230 VAC)	TS1481313R
Mechanical		
0001	Case	206Z064010
0002	Holder	206Z271010
0003	Holder	206Z271020
0004	Ltd	206Z257010
0005	Terminal	206Z123010
0006	Spring	206Z115010
0007	Bushing	206Z259010
0008	Heatsink	206Z267010
0009 (CSA4)	Label	206Z861010
0009 (CSA4SA)	Label	206Z861020
0010	Leg	206Z057010
0011	Screw	51300306U0
0012	Screw	51300308U0
0013	Screw	51300408B0
0014	Ring	64001500R0
-	Plug Adaptor (CSA4SA)	YJ0400086R

TN15M TONE BOARD

REFERENCE DESIGNATOR	VALUE	TYPE	SCC PART NUMBER
Capacitors			
C101,C111,C112, C113,C114,C121	1 uF, 50 V	Electrolytic	EJ10505010
C102,C104,C105, C109,C110	10 uF, 16 V	Electrolytic	EJ10601610
C108	1 uF, 25 V	Electrolytic	EV10502560
C115	470 pF	Ceramic	DD45471370
C116,C117	22 uF, 16 V	Electrolytic	EV22601660
C122,C123	0.0047 uF	Ceramic	DK46472300
Semiconductors			
Q101	AFH24F300	I.C.	HC10010230
Q102	MC4138	I.C.	HC10038060
Q103,Q106,Q108, Q109,Q112,Q113	2SC536	Transistor	HT305360F0
Q104,Q105	1S1555	Diode	HD20011050
Q107	WZ065	Zener Diode	HD30036090
Q110	SDT100	Thermistor	HH00007030
Resistors			
R106,R107	1M ohm, 1/8 W	Chip	RI05105180
R108	270K ohm, 1/8 W	Chip	RI05274180
R109	150K ohm, 1/8 W	Chip	RI05154180
R110,R122	10K ohm	Trimming	RA01030500
R124	1M ohm	Trimming	RA01050100
Miscellaneous Electrical			
J001	9-pin	Plug	YP10001060
J101	-	Jumper	75060251P0
F101	-	Ferrite Core	FC90050010
Mechanical			
101K	-	Shield	008C109012
102K	-	Screw	51302606B0

Resistors not listed are standard, fixed carbon composition, ±5%, 1/8 watt. The resistance values, in ohms, are indicated on the schematic diagram.

MP635G MICROPHONE

REFERENCE DESIGNATOR	DESCRIPTION	SCC PART NO.
Electrical		
C001	10 uF, 25 V Electrolytic Capacitor	EA10602530
C002	4.7 uF, 25 V Electrolytic Capacitor	EA47502530
E001	16 ohm Speaker	QK00508020
J001	6-pin Plug	YP10002240
J002,J003	2-pin Terminal	YL01020310
N001	Microphone Element	MS40000020
S001	Switch	SM01020210
Y001	Connective Cord	YB02000140
Mechanical		
001B	Case	010C064010
002B	Nameplate	010C203210
003B	Sheet	010C107020
004B	Holder	010C271010
005B	Clamp	010C005010
006B	Screw	51380205P0
011B	Case	010C064020
012B	Click	010C062400
014B	Clutch	010C061010
015B	Spring	010C115010
016B	Shaft	010C112010
017B	Washer	54020401E0
021B	Hanger	010C155010
023B	Shaft	010C112020
024B	Ring	64001500R0
031B	Button	010C270010
032B	Spring	010C115040
033B	Screw	51382306P0
036B	Screw	51382306P0
037B	Washer	54052600R0
038B	Nail	58000107R0
039B	Protector	3512269020
040B	Buffer	010C056010
041B	Screw	51380325K0
042B	Screw	51380320K0

Standard
Communications

Standard Communications Corp.
P.O. Box 92151
Los Angeles, CA 90009-2151
Telephone 213/532-5300

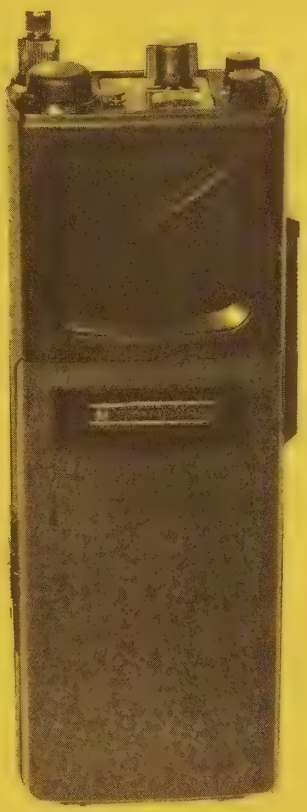
E005 985 1.5K VF

PRICE: $1.00/Copy

SR-C 830S50

Instruction Sheet "A"

PARTS LIST
SCHEMATIC DIAGRAM
PRINTED CIRCUIT BOARDS
EXPLODED PARTS VIEW
FCC DATA
CRYSTAL INFORMATION



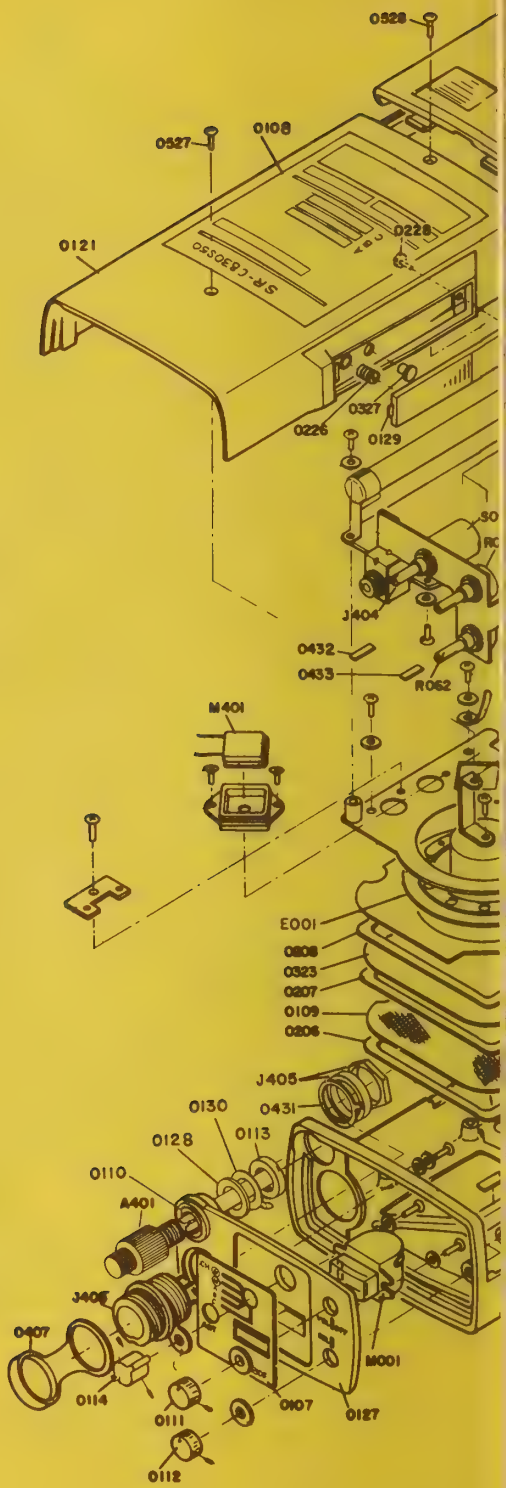
VHF/FM
MARINE HAND-HELD RADIO TELEPHONE

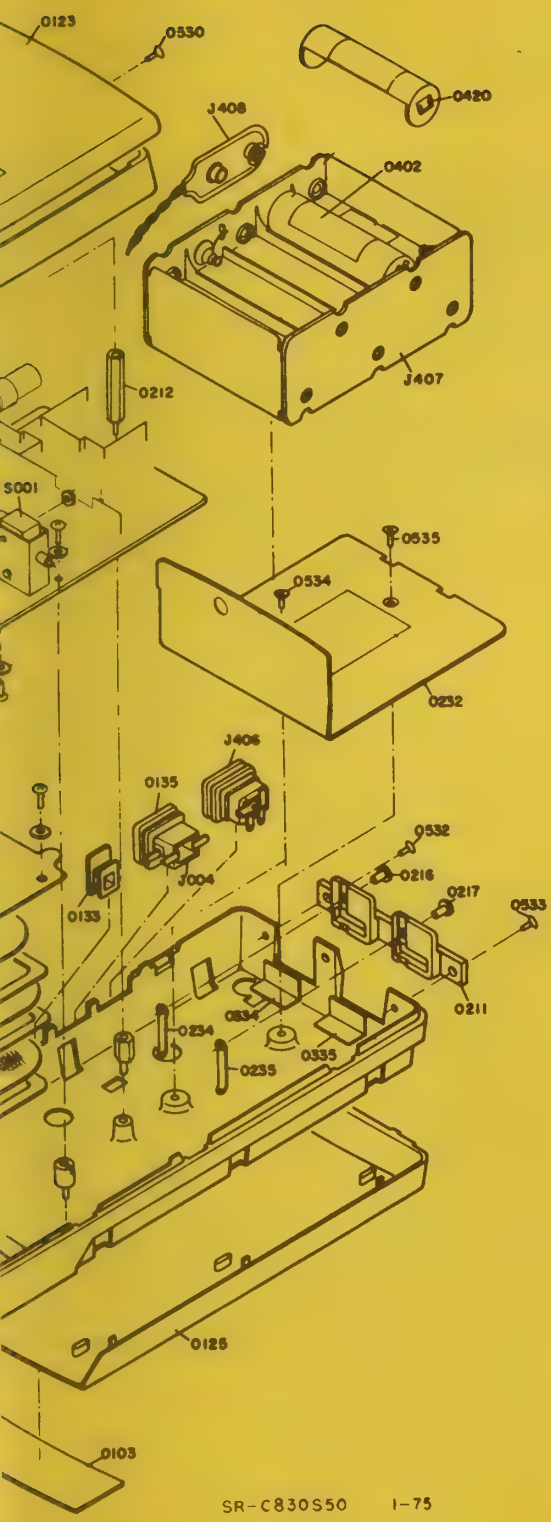
The SCC part number for this item is 830S05AU161.
Please refer to this number in all correspondence.

STANDARD COMMUNICATION CORP.

2/75

3729564A1


0328
0327
0108
0121
0228
0327
0226
0129
J404
0432
0433
R062
M401
E001
0208
0323
0207
0109
0206
J405
0130
0431
0128
0113
0110
A401
J406
0407
0114
0111
0107
0127
M001
0112

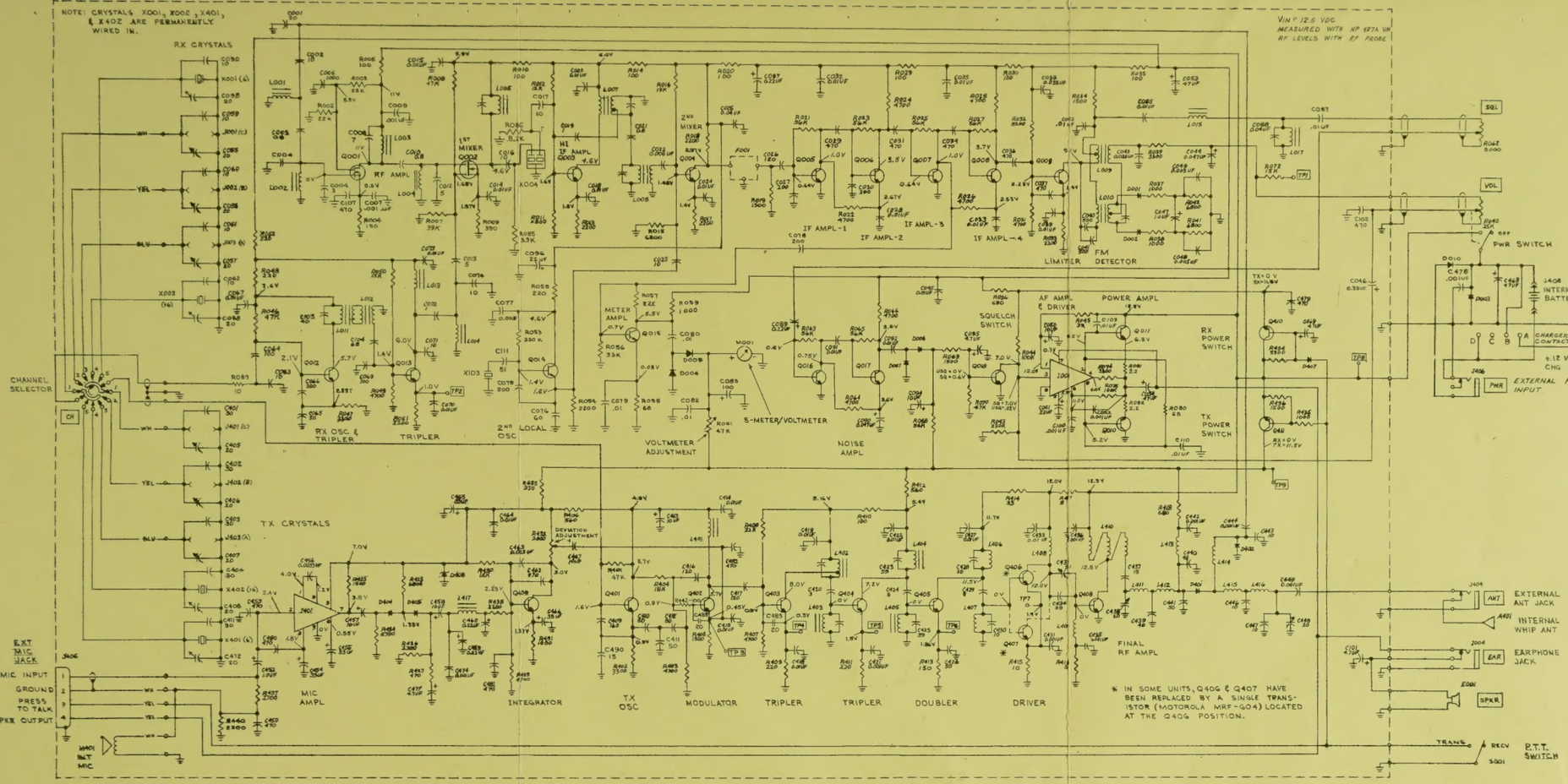


SR-C830S50 1-75

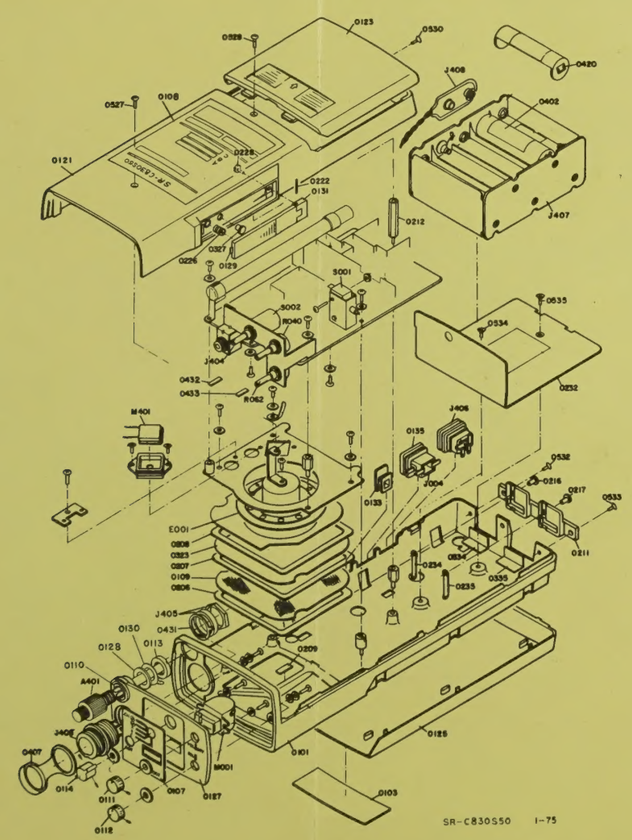
ED PARTS VIEW

PARTS LIST

REF. DESIGN	TYPE	SCC PART NO.
SELECTED PARTS:		
O101	CASE	3729064014
O103	NAME PLATE	3729203010
O107	INDICATOR	3729265023
O108	INDICATOR	3729265100
O109	PUNCHED PLATE	3653003010
O110	COLLAR	3729055034
O111	KNOB	3653154012
O112	KNOB	3653154012
O113	NUT	53228089E2
O114	KNOB	3782154010
O121	LID	3653257018
O123	LID	3653257024
O125	ESCUTCHEON	3653063014
O127	ESCUTCHEON	3737063023
O128	INSULATOR	3729120032
O129	BUTTON	3512270013
O130	TERMINAL	YL03010220
O131	HOLDER	3512211013
O133	INDICATOR	3653265032
O135	BRACKET	3653160013
O206	STICKER	3653122010
O207	STICKER	3653122010
O208	STICKER	3653122010
O209	STICKER	3653122020
O211	BRACKET	3653160045
O212	SUPPORT	3653101010
O216	CONTACTOR	3653123010
O217	CONTACTOR	3653123010
O222	PIN	3512254020
O226	SPRING	71101599L0
O228	BRACKET	3512160100
O232	HOLDER	3737271010
O234	LUG	62020029E0
O235	LUG	62020029E0
O323	PROTECTOR	3653269010
O327	LEVER	3653354022
O335	INSULATOR	3539120060
O334	INSULATOR	3539120060
O402	INDICATOR	3653265102
O407	COVER	3653053022
O420	TERMINAL	YL14020020
O431	LUG	62150019E0
O432	SPACER	3653118020
O433	SPACER	3653118020
O527	SCREW	51142606H0
O528	SCREW	51142606H0
O530	SCREW	51142604H0
O532	SCREW	51042604H0
O533	SCREW	51042604H0
O534	SCREW	5004260480
O535	SCREW	5004260480



SR-C830S50 TX-RX SCHEMATIC



SR-C830S50 EXPLODED PARTS VIEW

PARTS LIST

REF. DESIGN	TYPE	SCC PART NO.
SELECTED PARTS:		
O101	CASE	3729064014
O103	NAME PLATE	3729203010
O107	INDICATOR	3729265023
O108	INDICATOR	3729265100
O109	PUNCHED PLATE	3653003010
O110	COLLAR	3729055034
O111	KNOB	3653154012
O112	KNOB	3653154012
O113	NUT	53228089E2
O114	KNOB	3782154010
O121	LID	3653257018
O123	LID	3653257024
O125	ESCUTCHEON	3653063014
O127	ESCUTCHEON	3737063023
O128	INSULATOR	3729120032
O129	BUTTON	3512270013
O130	TERMINAL	YL03010220
O131	HOLDER	3512211013
O133	INDICATOR	3653265032
O135	BRACKET	3653160013
O206	STICKER	3653122010
O207	STICKER	3653122010
O208	STICKER	3653122010
O209	STICKER	3653122020
O211	BRACKET	3653160045
O212	SUPPORT	3653101010
O216	CONTACTOR	3653123010
O217	CONTACTOR	3653123010
O222	PIN	3512254020
O226	SPRING	71101599L0
O228	BRACKET	3512160100
O232	HOLDER	3737271010
O234	LUG	62020029E0
O235	LUG	62020029E0
O323	PROTECTOR	3653269010
O327	LEVER	3653354022
O335	INSULATOR	3539120060
O334	INSULATOR	3539120060
O402	INDICATOR	3653265102
O407	COVER	3653053022
O420	TERMINAL	YL14020020
O431	LUG	62150019E0
O432	SPACER	3653118020
O433	SPACER	3653118020
O527	SCREW	51142606H0
O528	SCREW	51142606H0
O530	SCREW	51142604H0
O532	SCREW	51042604H0
O533	SCREW	51042604H0
O534	SCREW	50042604B0
O535	SCREW	50042604B0

FCC DATA

TRANSMITTER TYPE ACCEPTANCE NO.	172
FINAL INPUT POWER	1.375 watts
FREQUENCY TOLERANCE	±.001%
TYPE EMISSION	16 F 3
RECEIVER MODEL NO.	SR-C830S50
REFERENCE FCC PART NOS.	21, 81, 83, 89, 91 and 93

SCHEMATIC NOTES

(1) Unless otherwise specified, resistance values are in ohms, ±10%, 1/8 watt.
(2) Capacitance values are in pico-farads when not marked, and in micro-farads when followed by a "uF".
(3) All schematic-indicated voltages are to common ground (chassis), using a VTVM (HP 427A or equivalent). Use RF probe when measuring RF circuits.
(4) All voltage measurements are taken with 13.8 VDC regulated input as a power source.
(5) The circuit board layout illustrates component location from the bottom (foil) side, for aid in locating a particular component, or test point.
(6) Crystals X001, X002, X401, and X402 are permanently wired in the circuit.

CRYSTAL INFORMATION

ORDERING CRYSTALS: When ordering Crystals, specify the desired operating frequency. The transmitter crystal is an S.C.C. type TXI and receiver crystal is type RXI.

PRICE: $1.00/Copy

SR-C 830S50

Instruction Sheet "A"

PARTS LIST
SCHEMATIC DIAGRAM
PRINTED CIRCUIT BOARDS
EXPLODED PARTS VIEW
FCC DATA
CRYSTAL INFORMATION

VHF/FM
MARINE HAND-HELD RADIO TELEPHONE

The SCC part number for this item is 830S05AU161. Please refer to this number in all correspondence.

STANDARD COMMUNICATION CORP.

2/75

3729564A1

The SCC part number for this item is 830S05AU161.
Please refer to this number in all correspondence.

PARTS LIST

The following Parts List includes all electrical parts except 1/8 watt, ±10%, fixed composition resistors, for which values are shown on the schematic. The right-hand column references each particular part of its corresponding location on the printed circuit board. Those components for which the grid location shows an asterisk (*) are not mounted on the P.C. board.

REF. DESIGN	VALUE	TYPE	SCC PART NO.	P.C. BOARD LOCATION
C001	30pF	Fixed Ceramic	DD15300020	F1
C002, 023, 059	10pF	Fixed Ceramic	DD12100060	G1, F5, C2
060, 061, 062				D2, C3, *
063, 071, 074				G1, G3, G4
099				*
C003, 010	0.8pF	Fixed Ceramic	DD16008010	F1, F3
C004	3pF	Fixed Ceramic	DD11030010	F1
C006, 007, 009	0.001pF	Fixed Ceramic	DK17102010	F2, G2, F2
C008	7pF	Fixed Ceramic	DD12070040	F2
C011	15pF	Fixed Ceramic	DD16150040	F3
C012, 013	5pF	Fixed Ceramic	DD10050020	F3, P3
C014, 015, 018	0.01uF	Fixed Ceramic	DK78103010	G3, F3, F4
028, 033, 035				H6, I6, I5
067, 070, 073				G1, G3, H3
077, 079, 082				G5, H6, I6
085, 087				H4, H3
C016, 017	10pF	Fixed Ceramic	DD12100060	F4, F4
C019, 072	1pF	Fixed Ceramic	DD10010020	04, G4
C020, 024, 032	0.01uF	Fixed Ceramic	DK18103030	F4, F5, H5
045, 109				G2, H1
110				I1
C021	0.6pF	Fixed Ceramic	DD16006010	F4
C022	0.005uF	Fixed Ceramic	DK17502010	F5
C025	0.04uF	Fixed Film	DF17403010	F6
C026	470pF	Fixed Ceramic	DK16471010	G5
C029, 031, 034	470pF	Fixed Ceramic	DK16471010	H5, I5, I5
036, 037, 102				I5, H5, *
107				*
C027, 030, 066	200pF	Fixed Ceramic	DD16201030	H5, H5, G1
075, 078				G5, H6
C038, 043	0.033uF	Fixed Film	DF17333010	I4, I4
C039, 080, 091	0.01uF	Fixed Film	DF17103010	H5, I6, H3
092				H3
C040, 041	500pF	Fixed Ceramic	DD16501010	H4, H4
C042	0.01 uf	Fixed Film	DF17103010	I4
C044, 090	0.047uf; 35VDC	Fixed Electrolytic	EW47303510	I4, H3
C046	0.033uF; 25VDC	Fixed Electrolytic	EW33402510	H2
C047	1uF; 25VDC	Fixed Electrolytic	EW10501510	I3
C048, 049	0.047uF	Fixed Film	DF17472010	I3, I3
C050	10uF; 16VDC	Fixed Electrolytic	EA10601690	H1
C051	33uF; 16VDC	Fixed Electrolytic	EA33601090	I2
C052	0.001uF	Fixed Film	DF17102010	H1
C053, 054	47uF; 16VDC	Fixed Electrolytic	EA47601690	I1, R2
C055, 056, 057	0 to 20pF	Variable Ceramic	CT12000020	C2, D2, D2
058, 098				*, *
C064, 069	100pF	Fixed Ceramic	DD15101020	G1, G3
C065	50pF	Fixed Ceramic	DD15500040	G2
C076	60pF	Fixed Ceramic	DD15600010	G5
C083	100uF; 6VDC	Fixed Electrolytic	EA10704690	R6
C088	0.04uF	Fixed Film	DF17403030	H4
C089, 096, 097	0.22uF; 25VDC	Fixed Electrolytic	EW22402510	H3, O5, P5
C094	10uF; 10VDC	Fixed Electrolytic	EV10601030	H2
C095	4.7uF; 16VDC	Fixed Electrolytic	EV47501610	H2
C100	.001uF	Fixed Ceramic	DK17102010	H2
C101	4.7uF 35VDC	Fixed Ceramic	EA47503590	*
C103	40pF	Fixed Ceramic	DD15400030	G2
C102, 107	470pF	Fixed Ceramic	DK16471010	*, G2
C104	68pF	Fixed Ceramic	DD16680010	G3
C108, 109	0.01uF	Fixed Ceramic	DK18103030	*, H1
110				I1
C111	51pF	Fixed Mica	DF36510010	P4
C401, 402, 403	30pF	Fixed Mica	DF363300020	A2, B1, C1
404, 428, 471				*, D6, *
C405, 406, 407	20pF	Trimmer	CT12000020	A2, A1, B1
408, 433, 438				*, C5, B4
448, 472				A4, *

REF. DESIGN	VALUE	TYPE	SCC PART NO.	P.C. BOARD LOCATION
C409	160pF	Mica	DF35161500	F1
C410, 411	50pF	Fixed Ceramic	DD15500080	E2, F2
C412	51pF	Mica	DF36510010	E2
C413, 457	10uF;	Electrolytic	EA10601690	E2, D3
458	16VDC			D3
C414, 419	0.01uF	Fixed Ceramic	DK18103030	E2, E4
422, 427				E5, D6
464				D4
C415	0.005uF	Fixed Ceramic	DK17502010	F2
C418	0.01uF	Fixed Ceramic	DK18103010	E3
C416, 417	120pF	Fixed Ceramic	DD16121010	E2, E3
C420, 424	3pF	Fixed Ceramic	DD11030010	N4, E6
C421, 431, 432	0.01uF	Fixed Ceramic	DK17102010	E5, D5, D6
435, 436, 442				C5, B5, B6
444, 449, 474				A5, A4, E4
478				*
C423, 425, 434	39pF	Fixed Mica	DF36390010	E5, E5, C5
C426	50pF	Fixed Ceramic	DD15500040	E6
C429	5pF	Fixed Ceramic	DD11050030	D5
C430	10pF	Fixed Mica	DF36100020	D5
C437	15pF	Fixed Ceramic	DF16150030	B5
C439, 440	40pF	Fixed Ceramic	dd15400010	A5, B5
C441	50pF	Fixed Ceramic	DD16500010	B5
C443, 446	10pF	Fixed Ceramic	DD12100010	A5, A5
447				A4
C450, 453, 462	1uF;	Fixed Electrolytic	DK16471010	C3, D3, D3
479, 480, 481	10VDC			D6, M3, M5
482				C3
C452	1uF; 10VDC	Fixed Electrolytic	EW10501010	D3
C454, 455	33uF; 3VDC	Fixed Electrolytic	EV33600310	D3, D3
C466	33uF; 3VDC	Fixed Electrolytic	EW33600310	D4
C456	0.0033uF	Fixed Film	DF17332010	D3
C459, 460	22uF; 25VDC	Fixed Electrolytic	EW22402510	E4, E4
C463	0.0022uF	Fixed Film	DF17223010	D3
C465	33uF; 10VDC	Fixed Electrolytic	EA33601090	D4
C467	10uF; 10VDC	Fixed Electrolytic	EW10601010	C4
C468	47uF; 16VDC	Fixed Electrolytic	EA47601690	I2
C469	4.7uF; 35VDC	Fixed Electrolytic	EA47503590	B5
C473	20pF	Fixed Mica	DF36200020	D6
C477	4.7uF; 6VDC	Fixed Electrolytic	EW47500610	E3
C488, 489	20pF	Fixed Ceramic	DD16200010	N2, N3
DIODES:				
D001, 002		Germanium	HD1000150	I3, H3
D003, D010		Silicon	HD20001100	I3, *
D004, 005		Germanium	HD10001010	I6, I6
D006, 007		Silicon	HD20011050	H2, I3
404, 405, 407				D3, E4, C6
D401, 402		Silicon	HD20000120	A5, A6
D406		Zener	HD30023090	C5
INDUCTORS:				
L001, 002, 003		RF Tuning	LA50018020	F1, F1, F3
004				F3
L005		11.7 MHz IF	LI55016152	F4
L006		11.7 MHz IF	LI55016182	F4
L007		11.7 MHz IF	LI55016132	F4
L008		11.7 MHz IF	LI55016140	F4
L009		455 kHz Discriminator	LI70030360	I4
L010		455 kHz Discriminator	LI70030350	I3
L011, 012		First Tripler	LI50028012	G2, G2
L013, 014		Second Tripler	LA50018030	G4, G4
L015, 017		RF Choke	LC13940010	H4, H4
L018		RF Choke	LC11220020	*
L401		Phase Modulator	LA55016010	E3
L402		First Tripler	LA70196040	E4
L403		First Tripler	LA70196050	E4
L404, 405		Second Tripler	LA50018030	E5, E5
L406, 407		Doubler	LC15000012	D5, D5
L407, 411, 412		Choke Coil	LC14000010	D5, B4, A5
L408		Driver	LC12800010	D5
L409		Choke Coil	LC13810020	C5
L410		PA	LM13422010	B5
L411, 415, 416		RF Tuning	LC13400010	B4, A5, A5
L412		RF Tuning	LC14000010	A5
L413		RF Choke	LC13810010	B5
L414		RF Choke	LC11610010	A5
L417		Choke Coil	LC22260020	D4
TRANSISTORS:				
Q001		FET	HF90001110	F2
Q002		MOSFET	HF40040180	F3
Q003, 004, 005		NPN SILICON	HT30535180	F4, F5, H5
006, 007, 008		NPN SILICON		H5, I5, I5
009, 012, 013				H4, G2, G3
014, 015				G5, H6
Q010		PND SILICON *	HT10683180	I1
Q011		NPN SILICON *	HT31383180	G1
Q016, 017, 018		NPN SILICON	HT30945100	G3, H3, G2
Q401, 402, 403		NPN SILICON	HT30535180	E1, E2, F3
404				E4
Q405, 406, 407		NPN SILICON	HT30387110	E6, D6, D5
Q408		NPN SILICON	HT30730100	C4
Q409		NPN SILICON	HT30945100	D4
Q410		NPN SILICON	HT31213180	C6
Q411		PNP GERMANIUM	HT10673180	B6

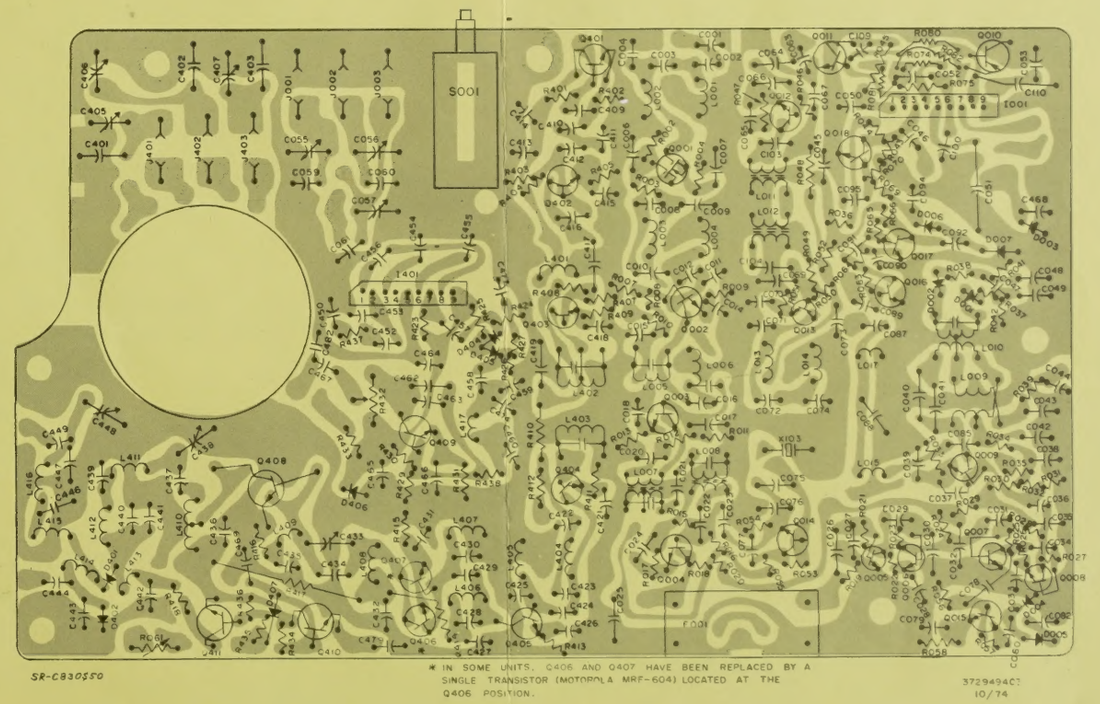
REF. DESIGN	VALUE	TYPE	SCC PART NO.	P.C. BOARD LOCATION
RESISTORS:				
R040	25,000 ohm W/Switch	Variable (Vol/Off)	RB12530022	*
R061	47,000 ohm	Variable (Meter Adj.)	RA04730010	B6
R062	5000 ohm	Variable (Deviation)	RB05020042	*
R080	68 ohm, ¼W	Fixed Composition	GC10680180	H1
R081	22 ohm, ¼W	Fixed Composition	RC10022140	H1
R415	10 ohm, ¼W	Fixed Composition	RC10100140	D5
R432	2000 ohm	Trimmer	RA02020090	D4

NOTE: Resistors not listed in parts list are standard, fixed composition, ±10%, 1/8 watt. Resistance values (ohms) are shown on the schematic.

MISCELLANEOUS:				
A401		Antenna	YR04049012	*
E001		Speaker	QK00503050	*
F001	455KHZ	Ceramic Filter	FG455309E0	F6
I001		Integrated Circuit	HC10013030	I1
I401		Integrated Circuit	HC10014030	D3
J001		Socket	YJ03000020	C1
J004		Jack	YJ01000740	*
J402, 403		Socket	YJ03000020	B2, *
J404		Jack	YJ01000740	*
J405		Jack	YJ10000560	*
J406		Jack	YJ04000540	*
J407		Battery Case	YJ514000020	*
M001		Meter	LM11014032	*
M401		Microphone	MS40000020	*
P001		PWB	YD36530016	*
S001		T/R Switch	SG01020060	D1
S002		Rotary Switch	SR02050090	*
X001	156.3MHz	Quartz Crystal	XC41606661	*
X002	156.8MHz	Quartz Crystal	XB41612221	*
X003	12.155 MHz	Quartz Crystal	XA21215505	*
X004	X-Tal Filter	Quartz Crystal	XU411700N5	*
X401	156.3MHz	Quartz Crystal	XP48683332	*
X402	156.8MHz	Quartz Crystal	XP48711112	*

SR-C830S50 TX-RX P.C. BOARD (FOIL SIDE) LAYOUT

370849902



SR-C830S50 TX-RX P.C. BOARD (COMPONENT SIDE) LAYOUT

372949403